

Vanderbilt University Undergraduate Catalog



Calendar 2004/2005

FALL SEMESTER 2004

Deadline to pay fall charges / Tuesday 17 August
Orientation begins for new students / Saturday 21 August
Registration ends / Tuesday 24 August
Classes begin / Wednesday 25 August
Change period for fall / Thursday 26 August–Wednesday 1 September
Homecoming and related activities / Monday 1 November–Saturday 6 November
October break / Monday 18 October–Tuesday 19 October
Course request period for spring / Monday 1 November–4:00 p.m. Friday 12 November
(Dates for spring registration will be published in the spring *Schedule of Courses*.)
Thanksgiving holidays / Saturday 20 November–Sunday 28 November
Classes end / Thursday 9 December
Reading days and examinations / Friday 10 December–Saturday 18 December
Fall semester ends / Saturday 18 December

SPRING SEMESTER 2005

Deadline to pay spring charges / Wednesday 5 January
Orientation for new students / Sunday 9 January
Classes begin / Wednesday 12 January
Change period for spring / Thursday 13 January–Wednesday 19 January
Spring holidays / Saturday 5 March–Sunday 13 March
Founder's Day / Thursday 17 March
Parents Weekend / Friday 1 April–Sunday 3 April
Course request period for fall 2005 (continuing students) / begins Monday 11 April
Classes end / Tuesday 26 April
Reading days and examinations / Wednesday 27 April–Thursday 5 May
Deadline to register for fall to avoid the late registration fee / Friday 6 May
Commencement / Friday 13 May

MAY SESSION 2005

Registration; classes begin / Monday 9 May
Classes end; examinations / Friday 3 June

SUMMER SESSION 2005

Registration for most schools / Monday 6 June
Classes begin in Arts and Science, Blair, and Engineering / Tuesday 7 June
Module I begins in Peabody / Monday 13 June
Examinations for first-half courses / Friday 8 July
Module II begins in Peabody; supplementary registration for second-half courses in other schools / Monday 11 July
Second-half courses begin / Tuesday 12 July
Examinations for second-half and full-term summer courses / Thursday 11 August–Friday 12 August



Undergraduate Catalog

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

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Vanderbilt
University
2004/2005

Containing general information
and courses of study
for the 2004/2005 session
corrected to 25 June 2004
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 non-curricular matters and concerning withdrawal for medical or emotional reasons can be found in the *Student Handbook*.

NONDISCRIMINATION STATEMENT

In compliance with federal law, including the provisions of Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, Vanderbilt University does not discriminate on the basis of race, sex, religion, color, national or ethnic origin, age, disability, or military service in its administration of educational policies, programs, or activities; its admissions policies; scholarship and loan programs; athletic or other University-administered programs; or employment. In addition, the University does not discriminate on the basis of sexual orientation consistent with University non-discrimination policy. Inquiries or complaints should be directed to the Opportunity Development Officer, Baker Building, VU Station B #351809, Nashville, Tennessee 37235-1809. 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 2,000 full-time members and a diverse student body of about 11,000. Students from many regions, backgrounds, and disciplines come together for multidisciplinary study and research. To that end, the University is the fortunate recipient of continued support from the Vanderbilt family and other private citizens.

The 330-acre campus is about one and one-half miles from the downtown business district of the city, 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 the Arthur J. 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, Bachelor of Science.

Graduate School. Master of Arts, Master of Arts in Teaching, Master of Liberal Arts and Science, Master of Science, Doctor of Philosophy.

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.

Law School. Doctor of Jurisprudence, Master of Law.

School of Medicine. Doctor of Audiology, Doctor of Medicine, Master of Medical Physics, Master of Public Health, Master of Science in Clinical Investigation.

School of Nursing. Master of Science in Nursing.

Owen Graduate School of Management. Master of Business Administration.

Peabody College. Bachelor of Science, Master of Education, Doctor of Education.

No honorary degrees are conferred.

Accreditation

Vanderbilt University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033, telephone number 404-679-4500) to award bachelor's, master's, specialist's, and doctor's degrees. Vanderbilt is a member of the Association of American Universities.

The Libraries

The Jean and Alexander Heard Library

"We often tend to think of a library simply as a collection of books. What we sometimes forget is that a library is a place of interaction, where the minds of students and faculty collide with other minds removed in time and place." —*Chancellor Emeritus Alexander Heard*

The Jean and Alexander Heard Library is one of the important research libraries in the Southeast, with more than 2.8 million volumes in nine libraries. Most materials are shelved in open stacks and are available to students and faculty through Acorn, the library's online catalog. The Heard Library Web site also provides access to a growing number of full-text journals, as well as indexes and other research resources, and is accessible remotely via the campus network and from workstations in each library.

The divisions of the Heard Library include:

Annette and Irwin Eskind Biomedical Library

Central Library (contains resources in the social sciences and humanities)

Divinity Library

Alyne Queener Massey Law Library

Walker Management Library

Anne Potter Wilson Music Library

Peabody Library

Sarah Shannon Stevenson Science and Engineering Library

Special Collections and University Archives

For more information about library collections, facilities, and services, see the library's portal, www.library.vanderbilt.edu.

Information Technology Services

Information Technology Services (ITS) offers voice, video, data, and computing services to Vanderbilt students, faculty, and staff.

ITS maintains and supports VUNet, the campus-wide data network that provides access to the Internet, as well as VUNetID, which enables Vanderbilt users to identify themselves to certain services on VUNet. Services currently authenticated by VUNetID include OASIS, the University's course registration system; OAK, Online Access to Knowledge; VUmail, the University's elec-

tronic message system; and VUspace, the University's network file system.

All campus residences are included in ResNet, which provides services for direct connection to VUnet. More information about ResNet can be found at www.vanderbilt.edu/resnet.

ITS also maintains the campus voice network, offering several services. Each residential student has a personal phone line as well as an option to purchase voice mail service. Residential students are also eligible for a V-net long distance code enabling low-cost long distance calls from campus. For more information on ITS services, visit the Web page at www.vanderbilt.edu/its.

The ITS Help Desk is an information center designed to help students, faculty, and staff find answers to questions about connecting to VUnet and using VUnet services. Help Desk locations, hours, contacts, and other information can be found at www.vanderbilt.edu/helpdesk.

For more information on computing at Vanderbilt, visit the "Technology" Web page, www.vanderbilt.edu/technology.

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. Students unable to participate in the graduation ceremony will receive their diplomas by mail.



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1875-1957

Special Programs for Undergraduates

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Study Abroad Programs

Vanderbilt offers study programs for all undergraduate students from Arts and Science, Peabody, Engineering, and Blair. Programs are offered in Argentina, Australia, Brazil, Chile, China, the Dominican Republic, England, France, Germany, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Russia, Scotland, Spain, and Taiwan 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 Study Abroad Office in 008 Furman Hall. Study Abroad also maintains a Web site, www.vanderbilt.edu/studyabroad. The study abroad programs are described in more detail in the chapter on Additional Programs in the Arts and Science section of this catalog.

Peabody College students majoring in early childhood or elementary education may apply to fulfill part of their student teaching requirement in Cambridge, England, during the summer before their senior year. Information about student teacher placement in Cambridge is available from the Department of Teaching and Learning.

Joint Programs

Vanderbilt undergraduates in education, engineering, and music 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 approved courses in the other schools for regular or professional credit toward the liberal arts degree (see Limitation on Professional Hours in the Arts and Science section of this catalog). A list is available in the College of Arts and Science Registrar's Office. 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, public health, and many related areas are under the general supervision of the Advisory Committee on Health Professions. Associate Professor Thomas N. Oeltmann is health professions adviser for students in Arts and Science and Blair. Professors Thomas R. Harris and Sharon L. Shields are advisers to engineering and Peabody students, respectively.

Medicine

Students interested in premedical studies should plan their undergraduate programs in consultation with Professor Oeltmann or the appropriate adviser for their school. 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.

See the Vanderbilt *Medical Center Catalog* for the official statement on minimum requirements for admission. *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 a Master of Science in Nursing (M.S.N.) degree in five 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 obtain both the baccalaureate degree and the M.S.N. degree by combining three and one-half years (seven semesters) 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 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 CPLE 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 pre-specialty 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 Nursing School for admission to the senior year in absentia program by December 1 of their junior year. Students are subject to all Nursing School admission requirements, and no student is assured of admission to the Nursing School. Up to 16 hours of Nursing School courses approved by the College may be counted toward completion of the undergraduate degree. Upon acceptance to the Nursing School, 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 or (c) complete 78 hours of prerequisite courses and apply for admission to the School of Nursing for either their junior or their senior year. 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:

Six hours of English composition, literature, or other Vanderbilt courses designated with a "W."

Six hours of humanities courses concerned with human thought, including literature, classics, theatre, fine arts, history, music, philosophy, and religion. Technical or skill courses, such as music performance or studio art, are not acceptable humanities courses.

A required introductory course in statistics that includes descriptive and inferential statistical techniques; Mathematics 127a–127b, Mathematics 180, Mathematics 218, or Peabody Psychology 2101 will fulfill this requirement.

Nine hours of social science courses in psychology, sociology, anthropology, political science, or economics.

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, 226 Godchaux Hall, Nashville, TN 37240, (615) 322-3800, or see the Web site, www.mc.vanderbilt.edu/nursing, 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 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

Army Reserve Officers' Training Corps (ROTC)

Army ROTC provides college-educated officers for the 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 technical 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.

Scholarship students receive \$20,000 in tuition assistance each year, an

annual \$600 book allowance, a monthly \$250 tax-free stipend, and all uniforms. Vanderbilt University also provides Vanderbilt ROTC scholarship students an additional \$3,000 tuition grant each year. Students who are not on scholarship receive the monthly stipend during their junior and senior years.

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. For more information, see the Web site at www.armyrotc.com.

College sophomores not enrolled in military science may enter the program by attending four weeks of summer training at Fort Knox, Kentucky, after their sophomore year. These students are then eligible to compete at the national level for two-year scholarships.

Enlisted members of the U.S. Army are eligible for Green-to-Gold scholarships that are determined by national competition or by the commanding generals of Army divisions and corps.

Enlisted members of the Army Reserve or Army National Guard or outstanding students who are interested in joining the Army Reserve or Army National Guard may be eligible for two-year scholarships. They must have successfully completed two years of college to apply.

Summer training. The 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. Other training opportunities exist for qualified applicants who volunteer.

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 officer basic courses that qualify new lieutenants in their specialties. Afterwards they are usually assigned as platoon leaders, typically responsible for every aspect of training, supervising, and caring for sixteen to thirty soldiers and millions of dollars worth of equipment. Education delays are available for critical specialties requiring post-graduate civilian education such as law and medical degrees.

Service obligations. After the freshman year, scholarship students incur a service obligation of four years active duty and four years in the Army National Guard or the Army Reserve. There are also opportunities to serve all eight years in the Guard or Reserves.

Course credit. During the four-year program, Army ROTC students complete eight courses of Military Science. Academic credit varies by school.

College of Arts and Science. Army ROTC students may count MS 113 and MS 151 as professional hours. Grading is on a P/F basis.

School of Engineering. MS 113, 151, and 152 may be taken as open electives.

Peabody College and Blair School of Music. MS 113, 151, and 152 are acceptable as electives.

Tuition. Tuition is waived for any military science course that is not applied toward the degree.

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 (ROTC). Also see www.vanderbilt.edu/army.

Military Science Department

COMMANDING OFFICER William H. Hedges

MILITARY INSTRUCTORS Ryan S. Jones, David M. Miller, Edwin W. Summey

Military Science Courses

FRESHMAN YEAR

MS 111. Foundations of Officership

MS 113. Basic Leadership

SOPHOMORE YEAR

MS 151. American Military History: Principles of War

MS 152. Leadership and Teamwork

JUNIOR YEAR

MS 211. Leadership and Problem Solving

MS 212. Leadership and Ethics

SENIOR YEAR

MS 251. Leadership and Management

MS 252. Officership

Naval Officer Education

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 and receive an education. Naval Officer Education prepares students for active duty service as officers in the U.S. Navy and Marine Corps. Its primary focus is to develop the ablest leaders possible by building upon the academic strength of Vanderbilt and providing essential military and leadership education.

Students participate in the NROTC unit in either 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 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 assistance, fees, \$250 per semester for textbooks, uniforms, and a monthly stipend of \$250. Vanderbilt also provides scholarship students with a \$3,000 per year stipend toward room and board. College Program students are provided with uniforms, textbooks for naval

science courses, and, upon commencement of their junior year, a monthly stipend of \$250.

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. The application process begins as early as the spring semester of the student's junior year, but no later than December 1 of the year prior to admission. 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. Those selected will attend a six-week naval orientation program during the summer prior to joining the NROTC unit in their junior year.

Service obligation. After their freshman year, scholarship students incur a service obligation of four years of active duty and four years in the inactive reserve. College program students incur a three-year active duty and five-year inactive reserve commitment upon commencing their junior year.

Summer training. Summer training of about 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 students are required to complete a maximum of eight courses (24 hours) of naval science. Academic credit awarded varies by school and is outlined below.

College of Arts and Science. NS 231 may be taken for academic credit as professional hours. NS 241 may be taken for academic credit as professional hours by NROTC students; Sociology 247 may be taken in lieu of NS 241. History 131 may be taken for credit as part of the NROTC requirement. All other naval science hours are earned in excess of the 120 hours required for the B.A. or B.S. degree.

School of Engineering. History 131 may be counted as a social science elective. Courses NS 121, 231 and 241 may be counted as open electives. Management of Technology 244 or 234 (technical electives) or Sociology 247 (social science elective) may be substituted for NS 241. Mechanical Engineering 220a with a reading supplement may be substituted for NS 121. Use of electives varies by major.

Blair School of Music and Peabody College. Courses NS 231 and 241 and History 131 are acceptable as electives. Sociology 247 or HOD 1100, 1200, or 2700 may be taken in lieu of NS 241.

Tuition. Tuition is waived for any naval science course that is not applied toward the degree.

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

Calculus (6 credits minimum): Mathematics 150a–b, or 155a–b completed by the end of the sophomore year.

Physics (8 credits): 116a–b, 117a–b, or 121a–b completed by the end of the junior year.

English (6 credits): Two semesters of any English course or courses consisting of a writing component (e.g., 115W).

American History/ Political Science (3 credits): HIST 170a–b, PSCI 100, 101, 102, 220, 221, 222, 245, or 248.

Computer Science (3 credits): CS 101 or above, excluding CS 151.

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

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) 288-0118.

Naval Science

COMMANDING OFFICER Joseph A. Johnson
 EXECUTIVE OFFICER Bruce A. Newport
 MARINE INSTRUCTOR Anthony R. Perretta Jr.
 NAVAL INSTRUCTORS Eugene R. Anthony, Richard D. Harvey, Bruce A. Newport,
 Jamie Newton

Naval Science Courses

FRESHMAN YEAR

NS 100. Naval Orientation

History 131. Sea Power in History

SOPHOMORE YEAR

NS 241. Organization and Management

NS 121. Naval Engineering Systems

JUNIOR YEAR

NS 231. Navigation

NS 232. Naval Operations

SENIOR YEAR

NS 130. Naval Weapons Systems

NS 242. Leadership Seminar

The Marine option courses listed below are taught in the fall, rotating on a yearly basis. They are taken in the junior and senior year in lieu of those prescribed above.

NS 231m. Evolution of Warfare

NS 241m. Amphibious Warfare

Air Force Reserve Officer Training

Students may participate in the Air Force Reserve Officer Training Corps (AFROTC) at Detachment 790 on the campus of Tennessee State University. AFROTC provides pre-commissioning training to college students (male and female) who desire to serve as officers in the U.S. Air Force (USAF).

High school students may also apply for the AFROTC College Scholarship Program online at *www.AFROTC.com*. The application deadline is typically December 1 of the senior year. Detailed eligibility requirements are available on the *AFROTC.com* Web site.

As AFROTC cadets, the majority of students will earn scholarships that may cover all, or a significant portion of, tuition costs plus up to \$510 per academic year to pay for textbooks. In addition, cadets earn a monthly stipend of up to \$400.

We require cadets to attend AFROTC classes, in uniform, one day per week. One summer, typically between the sophomore and junior year, cadets must attend a four-week military training session. The combination of USAF military education, training, and college-level curriculum gives cadets a broad-based knowledge of management, leadership, and technical skills.

The minimum eligibility requirements are as follows: be a U.S. citizen, thirty years old or younger on December 31 of the year of graduation (exception – prior enlisted), meet USAF weight standards, pass a physical fitness test, have a 2.5+ cumulative college GPA, and pass the Air Force Officer Qualifying Test (a USAF-unique academic aptitude test).

Although the USAF will accept students from any accredited academic major, there is a critical need for engineers (all disciplines). Upon graduation, cadets will earn USAF commissions, as Second Lieutenants, and must serve a minimum of four years on active duty.

For more information, visit *www.AFROTC.com* or telephone the Det 790 Unit Admissions Officer at (615) 963-5931. Also visit the Det 790 Web site at *www.tnstate.edu/rotc*.

Interdisciplinary Centers, Institutes, and Initiatives

Vanderbilt actively promotes research and teaching that crosses disciplines, departments, and institutional lines through a multitude of centers and institutes. Some of these programs receive funding through the Chancellor's Academic Venture Capital Fund, whose purpose is to launch major new inter-school or transinstitutional initiatives in promising research fields. Below is a sampling of Vanderbilt's interdisciplinary initiatives. For more information, see www.vanderbilt.edu/researchers.html.

THE CAL TURNER PROGRAM FOR MORAL LEADERSHIP IN THE PROFESSIONS fosters an environment conducive to faculty research and teaching in areas associated with moral leadership, helps students develop the ability to provide moral leadership within their chosen professions and within the broader community, and serves as a resource for professionals. www.vanderbilt.edu/moral_leadership

THE CENTER FOR THE AMERICAS seeks to provide innovative perspectives on history, culture, and society by bringing together scholars whose research and teaching cross disciplinary boundaries and the political and geographical boundaries of North, Central, and South America. <http://sitemason.vanderbilt.edu/centerfortheamericas>

THE CENTER FOR INTEGRATIVE AND COGNITIVE NEUROSCIENCE supports the quest to comprehend how the brain produces thought and emotion. The purpose of this endeavor is not only to develop more effective treatments for mental and neurological disorders, but also to further our understanding of what it is to be human. CIGN researchers focus on three areas: sensory science; development, learning and memory; and clinical neuroscience. <http://cicn.vanderbilt.edu>

THE CENTER FOR LATIN AMERICAN AND IBERIAN STUDIES, established in 1947, works to advance knowledge about and understanding of Latin America and Iberia. 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. CLAIS also brings speakers, visiting scholars, and conferences to campus and arranges for Vanderbilt professors to visit local classrooms. <http://sitemason.vanderbilt.edu/clais>

THE CENTER FOR MEDICINE, HEALTH, AND SOCIETY has more than one hundred affiliates from all schools and colleges of the University. It offers an undergraduate program (minor and contract major in Medicine, Health, and Society) and sponsors seminars, workshops, lectures, and conferences. Any interested faculty member or student may affiliate with the center.

THE CENTER FOR THE STUDY OF RELIGION AND CULTURE mobilizes a broad range of scholars to analyze the many ways culture and religion intersect, and the impact of those intersections on the global political, social, and economic climate. www.vanderbilt.edu/csrc

THE CURB CENTER FOR ART, ENTERPRISE, AND PUBLIC POLICY examines the complex, decentralized system through which federal legislation, government regulation, and the policies of film studios, record companies, and broadcasters shape America's cultural landscape. www.vanderbilt.edu/curbcenter

THE LEARNING SCIENCES INSTITUTE comprises a group of interdisciplinary scholars studying how we learn, with a special focus on new uses of technology and innovative teaching practices to enhance learning. <http://peabody.vanderbilt.edu/lsi>

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 two hundred scientists from forty 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. <http://braininstitute.vanderbilt.edu>

THE VANDERBILT INSTITUTE OF CHEMICAL BIOLOGY 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, small molecule discovery, enzyme and receptor chemistry, proteomics, structural biology, and chemical synthesis. The center trains graduate students, recruits new faculty members with needed expertise, and runs a seminar program. www.vanderbilt.edu/vicb

THE VANDERBILT UNIVERSITY INSTITUTE OF IMAGING SCIENCE aims to support advances in physics, engineering, computing, and other basic sciences for the development and application of new and enhanced imaging techniques to address important problems in biology and medicine, in health and disease. www.vuivs.vanderbilt.edu

THE VANDERBILT INSTITUTE FOR INTEGRATIVE BIOSYSTEMS RESEARCH AND EDUCATION unites biological and physical scientists and engineers who have interest in working at the multifaceted interface of biology, chemistry, education, engineering, medicine, and physics. VIIBRE targets much of its activities toward research and education in post-genomic systems biology. The institute is distinguished by its focus on the development and application of advanced cellular instrumentation and on the creation and implementation of pedagogically sound programs in interdisciplinary education. www.vanderbilt.edu/viibre

THE VANDERBILT INSTITUTE FOR 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 works to acquire the equipment needed to conduct nanoscale research, trains graduate students, and provides a point of focus for chemists, physicists, and engineers at Vanderbilt with research interests in nanoscience. VINSE includes programs in nano-optics; nano-bioprocesses; spintronics; nanoscale electronics; nanocrystal fabrication, characterization, and integration; and radiation effects and defect studies. <http://vinse.vanderbilt.edu>

THE VANDERBILT INSTITUTE FOR PUBLIC POLICY STUDIES addresses a wide range of issues, including health policy, urban social policy and revitalization of low-income inner-city neighborhoods, crime and anti-social behavior, social welfare, and joint U.S.-Japan business and technical cooperation. VIPPS provides opportunities for undergraduate and graduate students to learn about research design, implementation, and data analysis. Students are mentored by senior researchers and participate in all phases of research projects. By participating in research projects, students develop critical thinking skills and learn how to translate research findings into practical policy recommendations. www.vanderbilt.edu/VIPPS

THE VANDERBILT KENNEDY CENTER FOR RESEARCH ON HUMAN DEVELOPMENT is one of fourteen national centers for research on mental retardation and developmental disabilities supported in part by the National Institute of Child Health and Human Development. The

mission of the Kennedy Center is to improve, through research, training, and outreach, the quality of life of persons with disorders of thinking, learning, perception, communication, mood and emotion caused by disruption of typical development. The center is a university-wide institute, with interdisciplinary research programs addressing four broad areas: communication and learning, developmental neurobiology and brain plasticity, emotion and mood, and families. Students have the opportunity to collaborate in research with mentorship from renowned 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. <http://kc.vanderbilt.edu>

VANDERBILT UNIVERSITY SLOAN CENTER FOR INTERNET RETAILING leverages the expertise of eLab, founded by two Owen Graduate School of Management professors as the nation's first academic e-business research center, to study the enormous challenges and opportunities of Internet retailing. <http://elab.vanderbilt.edu>

THE ROBERT PENN WARREN CENTER FOR THE HUMANITIES promotes interdisciplinary research and study in the humanities, social sciences, and natural sciences. The center is designed to intensify and increase interdisciplinary discussion of academic, social, and cultural issues and also engages in outreach to the community by sponsoring teacher training, lectures and seminars, and publications designed to promote the importance of the humanities in today's world. www.vanderbilt.edu/rpw_center

Other initiatives include:	Computational Science: Atomic Structure Calculations
Adult Primary Care Center	Margaret Cuninggim Women's Center
Advanced Computing Center for Research and Education	Diabetes Research and Training Center
Alliance Center	Digestive Disease Research Center
American Economic Association	Digital Commerce Research Laboratory (eLab)
Arthritis and Joint Replacement Center	Division of Sponsored Research
W. T. Bandy Center for Baudelaire and Modern French Studies	English Language Center
Center for Clinical and Research Ethics	Family-School Partnership Lab
Center for Clinical Toxicology	Financial Markets Research Center
Center for Entrepreneurship Education	Forum for Entrepreneurship Education
Center for Fertility and Reproductive Research	Freedom Forum First Amendment Center at Vanderbilt University
Center for Innovation in Engineering Education	General Clinical Research Center
Center for Intelligent Systems	Genetic Epidemiology Centers
Center for Lung Research	Geriatric Evaluation Program
Center for Molecular Neuroscience	Informatics Center
Center for Pain Research and Neuromagnetics	Initiative in Biomathematics
Center for Space Physiology and Medicine	Institute for Software Integrated Systems
Center for Support of Professional Practice in Education	Intelligent Robotics Laboratory
Center for Teaching	Interdisciplinary Graduate Program in the Biomedical Sciences (IGP)
Center for Vascular Biology	IRIS Center for Faculty Enhancement
Child Development Center	Joint Center for Nursing Research
Classroom Organization and Management Program	Bishop Joseph Johnson Black Cultural Center
Clinical Nutrition Research Unit	W. M. Keck Free-Electron Laser Center / Biophotonics Program
Clinical Trials Center	Kelly Miller Smith Institute on the African American Church
Comprehensive Care Center	Laser Diagnostics and Combustion Group
Computational Science Education Project	Leadership Development Center
	Learning Technology Center
	Living State Physics

Mass Spectrometry Research Center	Vanderbilt-Ingram Cancer Center
Middle Tennessee Poison Center	Vanderbilt Institute for Public Policy Studies (VIPPS)
Opportunity Development Center	Center for Child and Family Policy
Owen Entrepreneurship Center	Center for Evaluation Research and Methodology
Peabody Center for Educational Policy	Center for Health Policy
Peabody Center for Faculty Enhancement	Center for Psychotherapy Research and Policy
Principals Leadership Academy of Nashville	Center for State and Local Policy
Program in Human Genetics	Center for U.S.-Japan Studies and Cooperation
Program in Law and Business	Vanderbilt-Northwestern-Texas-Harvard/MIT Engineering Research Center for Bioengineering Educational Technologies
Program in Structural Biology	Vanderbilt Program for Talented Youth
Proteomics and Functional Biology	Vanderbilt Sports Medicine Center
Cryo-electron Microscopy Facility	Vanderbilt Transplantation Center
Gene Profiling Laboratory	Vanderbilt Voice Center
Vanderbilt Inst. for Imaging Sciences	Bill Wilkerson Center
Proteomics Laboratory	Zebrafish Program in Functional Genomics
Radiation Effects and Reliability Group	
Sleep Center	
Smart Structures Laboratory	
Specialized Center of Research in Acute Lung Injury	
Specialized Center of Research in Newborn Lung Disease	
Susan Gray School	
Tennessee Lions Eye Center at Vanderbilt Children's Hospital	
TV News Archive	
Vanderbilt Addiction Research Center	
Vanderbilt Breast Center	
Vanderbilt Center for Environmental Management Studies	
Vanderbilt Engineering Center for Transportation Operations and Research	
Vanderbilt Executive Development Institute	
Vanderbilt Eye Center	

Life at Vanderbilt

1

Orientation

Vanderbilt conducts four undergraduate orientation programs. (1) The Summer Academic Orientation Program (SAOP), although not mandatory, is attended by about two-thirds of the entering students and their families. During SAOP, students meet with faculty advisers, plan their fall schedules, and preregister for classes. (2) DoreWays programs begin during the week of August 16 and end on move-in day. The program is optional with limited enrollment. Students participating in DoreWays can choose from among a variety of experiences, including a leadership track, multicultural track, a service-learning track, a wilderness experience, or a team-building program led by faculty and upperclass students. (3) Fall Orientation is required for all new freshmen and transfer students. Activities include a wide range of social and academic events to ensure a smooth transition into university life. Small groups of new students will be matched with upperclass mentors, called Vuceptors, to assist in their transition. (4) Fall Festival occurs during the first full weekend of each fall semester. New students make connections with upperclass students, peers, faculty, and staff throughout this weekend of social and academic hands-on activities.

Vanderbilt is proud of the way new community members are welcomed to campus, but constantly aims to improve. Comments or suggestions about all orientation programs are encouraged and appreciated. See our orientation Web site for more information at www.vanderbilt.edu/studentlife/orientation.

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 Honor Council procedures are published in the *Student Handbook*, available on the Web, www.vanderbilt.edu/student_handbook.

Responsibility for the preservation of the system falls on the individual student who, by registration, acknowledges the authority of the 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 for the Honor System at the beginning of the fall semester. Additional information about the Honor System is available on the Web at www.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 bulletin boards, or by other reasonable means of notification. The Undergraduate Student Conduct Council has original jurisdiction over all matters of nonacademic misconduct involving undergraduate students.

Residential Living

Residential living at Vanderbilt began in the 1880s when six cottages were constructed in response to a demand for on-campus housing. Today 5,000 students live on campus: this includes 83 percent of the undergraduates and 2 percent of the graduate and professional students.

Undergraduate Housing

Several types of housing are offered to meet the needs of a diverse student body—suites, singles, doubles, triples, apartments, and lodges.

Some housing is segregated by gender; most housing is coresidential. In the coresidential living space 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 room of every residence hall on campus. Residents with personal computers can connect to ResNet for high-speed data services.

Freshmen

Freshman men and women are usually housed in Kissam and Branscomb quadrangles and Barnard and Vanderbilt halls. Kissam Quadrangle consists of Hemingway, Reinke, Currey, Dyer, Mims, and Kissam halls. The halls are air conditioned, and the single rooms on each floor share a common bath facility. All residence halls have basic room furnishings that include bed, dresser, desk, chairs, and window coverings. Lounges, study rooms, and television rooms are located within the quadrangle.

Branscomb Quadrangle (Lupton, Scales, Stapleton, and Vaughn) is also air conditioned. There are 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, a computer lab, a Learning Center, and a convenience store.

Barnard and Vanderbilt Halls house freshmen in single and double air-conditioned rooms. Common area bath facilities are located on each floor. Study lounges, a television lounge, a convenience store, music practice rooms, and a laundry are located in the Vanderbilt/Barnard complex.

Upperclass Students

Cole and Tolman halls are located near Sarratt Student Center. Slightly more than 100 upperclass students live in single rooms in each hall. Cole and Tolman halls house upperclass female and male populations, respectively.

East, North, Gillette, West, and Memorial halls on the Peabody area of campus contain primarily double rooms with common bath facilities on each floor. All are air conditioned. Peabody residence halls have study lounges, television lounges, and common kitchens. There are two laundry facilities, several music practice rooms, and an exercise facility on the Peabody campus.

Upperclass students are also housed in the twelve-story, air-conditioned 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 and a lounge on each floor. The Towers are complete with lounges, meeting rooms, laundry facilities, storage rooms, recreation areas, music practice rooms, a convenience store, and a Food Court.

At the south end of the campus are 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.

Special Interest Houses

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 participate in suppers, movies, and recreation.

The goals of McTyeire House are to improve the fluency of McTyeire residents in Chinese, French, German, Japanese, or Spanish languages, and to expand communication between international and American students by means of discussions, programs, and international coffees and festivals. Space is available for ninety-four upperclass students in single rooms. Living in

McTyeire carries a commitment to take a predetermined percentage of one's meals in the McTyeire dining room.

Mayfield Living/Learning lodges are set aside for groups of ten students who want to establish their own special-interest houses. Such programs have included Arts, Community Service, Computers, Environment/Recycling, World Religions, Music, and Wellness.

Residential Life Administration

The residential community at Vanderbilt is divided into seven geographic areas, each of which has a full-time assistant director living within the area. Upperclass and graduate or professional students serve as Head Residents and Resident Advisers in the residence halls. An assistant vice chancellor, two directors, and two associate directors of Housing and Residential Education also live on campus. For more information, visit the Web site, *www.vanderbilt.edu/ResEd*.

Residence halls for freshmen have RAs on each floor. Assistant directors and their student staff are responsible for maintaining an atmosphere conducive to the students' general welfare and education.

Interhall, the representative body of student residents, plans programs and recreational and social activities, and advises the residential affairs administration on policy matters.

Room Assignment

Freshmen. Freshmen may apply for housing after payment of their matriculation fees. Students must indicate their preference for either a single room or a double room. Roommate or hallmate requests are considered. Admission to the University does not guarantee assignment to a particular 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 Interhall. 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 CARD

The 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 CARD Office, 184 Sarratt Student Center, Monday through Friday from 8:30 a.m. to 4:00 p.m. For more information, see the Web site at <http://thecard.vanderbilt.edu>.

Eating on Campus

Vanderbilt Dining's meal plan program, VU Meal Plans, gives students comprehensive dining options. Features include extended hours, multiple locations, variety, a rollover account for missed meals, and bonus bucks added at the beginning of the semester. The inclusive "Premium Plan" combines all plans: breakfast, lunch, and dinner.

All freshman Vanderbilt students living on campus are required to participate in the Lunch and Dinner Plan. The Lunch Plan is a seven-meal-per-week plan serving lunch Sunday through Friday, all-you-care-to-eat brunch on Saturday, and an all-you-care-to-eat Sunday buffet. The Dinner Plan is a seven-meal-per-week plan serving dinner Sunday through Saturday. An optional Breakfast Plan is also available. Other students may purchase the Breakfast Plan, Any 8 Plan, Lunch Plan, Dinner Plan, or Premium Plan by checking the selection on their housing applications or by purchasing the plans at the Vanderbilt CARD Office located in Sarratt Student Center.

There are various dining options conveniently located across campus. The Rand Dining Center, The Pub, Stonehenge Deli, Varsity Hill, Alpine Bagels, Grins Vegetarian Café, Engineering Café, Blair Café, Peabody Café, and Villa Pizza all host the VU Meal Plans. Vanderbilt Dining also operates six convenience stores including the Varsity Marketplace in Branscomb which is open 24 hours.

For more information on VU Meal Plans, visit www.vanderbilt.edu/dining/VUmealplans. For more information on Vanderbilt Dining, visit www.vanderbilt.edu/dining.

Services to Students

Confidentiality of Student Records (Buckley Amendment)

Vanderbilt University is subject to the provisions of federal law known as the Family Educational Rights and Privacy Act (also referred to as the Buckley Amendment or FERPA). This act affords matriculated students certain rights with respect to their educational records. These rights include:

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.

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.

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. One such situation is 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); a person or company 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.

The Buckley Amendment 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, e-mail 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 similar information. Any new entering or currently enrolled 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 in situations allowed by law. 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.

If a student believes the University has failed to comply with the Buckley Amendment he or she may file a complaint using the Student Complaint and Grievance Procedure as outlined in the *Student Handbook*. If dissatisfied with the outcome of this procedure, a student may file a written complaint with the Family Policy and Regulations Office, U.S. Department of Education, Washington, D.C. 20202.

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 the General Counsel.

Vanderbilt Directory Listings

Individual listings in the online *People Finder Directory* consist of the student's full name, school, academic classification, local phone number, local address, box number, and permanent address. The printed *Vanderbilt Directory* also contains these items unless the student blocks them using the update option of the *People Finder Directory*. Student listings in the *People Finder Directory* are available to the Vanderbilt community via logon ID and e-password. Students have the option of making their *People Finder* listings available to the general public (viewable by anyone with access to the Internet), of adding additional contact information such as cellular phone, pager, and fax numbers, and of blocking individual directory items or their listing in its entirety.

Directory information should be kept current. Students may report address changes via the Web by going to www.vanderbilt.edu/students.html and clicking on *Address Change* under *Student Services*.

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 and in all areas of Student Life offer counseling services to students:

- The Career Center
- Office of Housing and Residential Education
- Faculty Advisers
- Health Professions Advisers
- International Student and Scholar Services
- Learning Center
- Office of Student Activities
- Office of the University Chaplain and Affiliated Ministries
- Opportunity Development Center

Pre-Business Advisers
Pre-Law Advisers
Psychological and Counseling Center
Student Health Center
Teacher Education Adviser, Arts and Science
Teacher Licensure Office, Peabody College

Career Center

The Vanderbilt Career Center helps students of Vanderbilt University develop and implement career plans. This is accomplished by offering a variety of services and educational programs that help students determine career options, learn job search skills, gain career-related experience, and connect with employers and graduate/professional schools.

Services include individual career advising, career resource center, graduate and professional school services, career-related seminars and workshops, resume consultation, video interview training, internship information service, career fairs, campus interviews, credentials services offered through Interfolio, part-time and full-time job listings, and resume referrals. For detailed information about the Career Center, view our Web site at www.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 Opportunity Development Center. Services include, but are not limited to, extended time for testing, assistance with locating sign language interpreters, audio-taped textbooks, physical adaptations, notetakers, and reading services. Accommodations are tailored to meet the needs of each student with a documented disability. The Opportunity Development Center also serves as a resource regarding complaints of unlawful discrimination as defined by state and federal laws.

Specific concerns pertaining to services for people with disabilities or any disability issue should be directed to the Assistant Director for Disability Programs, Opportunity Development Center, VU Station B #351809, Nashville, Tennessee 37235-1809; phone (615) 322-4705 (V/TDD); fax (615) 343-0671; www.vanderbilt.edu/odc/.

Psychological and Counseling Center

The Psychological and Counseling Center is a broad-based service center available to full-time students, faculty, staff, and their partners and dependents. Services include: 1) family, couples, individual, and group counseling and psychotherapy; 2) psychological and educational assessment; 3) career assessment and counseling; 4) programs such as assertiveness training; marital communication; individual reading and study skills/test-taking techniques; body image, stress, and time management; group support programs for acquiring skills such as relaxation; 5) administration of national testing programs; 6) outreach and consultation; 7) special programming related to diversity issues; 8) campus speakers and educational programs.

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 Web site, www.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 without charge and without copayment: visits to staff physicians and nurse practitioners; personal and confidential counseling by mental health professionals; routine procedures; educational information and speakers for campus groups; and specialty clinics held at the SHC.

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 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 (www.vanderbilt.edu/student_health).

Student Accident and Sickness Insurance Plan

All degree-seeking students registered for 4 or more credit hours are required to have adequate health insurance coverage. The University offers a sickness and accident insurance plan that is designed to provide hospital, surgical, and major medical benefits. A brochure explaining the limits, exclusions, and benefits of insurance coverage is available to students 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 20 until August 20 of the following year, whether a student remains in school or is away from the University.

A student who does not want to subscribe to the insurance plan offered through the University must notify the Office of Student Accounts of adequate coverage under another policy. A new student must complete an online selection/waiver process through the Office of Student Accounts (www.vanderbilt.edu/stuacct) or the insurance company (www.kosterweb.com). This process must be completed by the designated payment deadline for students enrolling in the fall for annual coverage and for students who are newly enrolled for the spring term.

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 Student Insurance representative, (615) 322-4688. 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 health and accident insurance plan. No exceptions are made unless, in the judgment of the University, adequate coverage is provided from some other source. This insurance is required for part-time as well as full-time students. Information and application forms are provided through the Student Health Center.

Child Care Center

Vanderbilt Child Care Center operates as a service to University staff members, faculty members, and students. The program serves children from six weeks to five years of age, and offers placement through a waiting list. The center is accredited by the National Academy of Early Childhood Programs.

Bishop Joseph Johnson Black Cultural Center

The Bishop Joseph Johnson Black Cultural Center (BJJBCC) provides educational and cultural programming on the African world experience for the Vanderbilt community. It also promotes the retention of the University's African-descended students. Dedicated in 1984, the center is named for the first African-descended student admitted to Vanderbilt (in 1953), Bishop Joseph Johnson (B.D., '54; Ph.D., '58).

The center represents the University's efforts in promoting diversity and fostering understanding of the values and cultural heritages of people of African origin worldwide. In this respect, the center also serves as a clearinghouse for information relative to African and African-descended life and culture. Symposia, lectures, music, art exhibitions, audiovisual materials, and publications on the universal black experience provide a broad spectrum of activities for the University and the general public. Programs are publicized in the University calendar and a quarterly newsletter, *News from the House*. The Black Student Alliance (BSA) and the Cultural Center's Advisory Board assist in developing the center's programs.

The center is a system of support to African-descended students but is open to all students for small meetings and gatherings throughout the year. More information is available on the BJJBCC Web site at www.vanderbilt.edu/BCC.

International Student and Scholar Services

International Student and Scholar Services fosters the education and development of non-immigrant 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 non-immigrant 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.

In order to connect international students with the greater Nashville community, ISSS coordinates First Friends, which matches international students

with Americans both on and off campus. The weekly World on Wednesdays presentations inform, broaden perspectives, and facilitate cross-cultural understanding through discussions led by students, faculty, and staff. International Education Week in the fall and International Awareness Festival in the spring provide the campus with additional opportunities to learn about world cultures and to celebrate diversity. A range of programs and activities is provided throughout the year to address a variety of international student needs and interests. These programs include Vanderbilt Partners for International Education (a community service program), a Winter Party, an International Stress Fest, and a Graduation Send-Off. Additionally, ISSS staff have been instrumental in developing and implementing the Tennessee Conference for International Leadership which brings together international students from across the state for workshops and activities.

Margaret Cuninggim Women's Center

The Women's Center was established in 1978 to provide support for women at Vanderbilt as well as resources about women, gender, and feminism for the University community. In 1987, the center was named in memory of Margaret Cuninggim, dean of women and later dean of student services at Vanderbilt.

Programs for students, staff, and faculty are scheduled throughout the fall and spring semesters and are publicized on the Web site, www.vanderbilt.edu/WomensCenter, and in the monthly newsletter *Women's VU*, which is distributed without charge to campus addresses on request. A student group that works closely with the Women's Center, Vanderbilt Feminists, is open to all interested students, both male and female.

The center houses a small library with an excellent collection of books, journals, and tapes. Books and tapes circulate for four weeks. Copy facilities are available. The Women's Center is also home to Project Safe (PS), a coordinated program of education about, prevention of, and response to violence against women on campus.

Schulman Center for Jewish Life

The 10,000-square-foot Ben Schulman Center for Jewish Life was formally dedicated in the fall of 2002. The Ben Schulman Center is the home of Vanderbilt Hillel. Our goal is to provide a welcoming community for Jewish students at Vanderbilt to further religious learning, cultural awareness, and social engagement. The center offers worship, fellowship, lectures, and social action projects for Vanderbilt's growing Jewish community as well as any student who wants to learn more about Judaism. 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 322-8376 or e-mail hillel@vanderbilt.edu.

Religious Life

The Office of the University Chaplain and Affiliated Ministries exists to provide occasions for religious reflection and avenues for service, worship,

and action. There are many opportunities to clarify one's values, examine personal faith, and develop a sense of social responsibility.

The Holocaust and the Martin Luther King Jr. lecture series, as well as Project Dialogue, provide lectures and programs investigating moral issues, political problems, and religious questions.

Baptist, Episcopal, Jewish, Presbyterian, Reformed University Fellowship, Roman Catholic, and United Methodist chaplains work with individuals and student groups. Provisions for worship are also made for other student religious groups. Counseling and crisis referrals are also available.

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 www.vanderbilt.edu/traffic_parking/.

Freshmen may not purchase a reserved parking space or park on campus at any time. Bicycles must be registered with the VU Police Department.

Vanderbilt 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.

The 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 Police Department provides comprehensive law enforcement and security services to all components of Vanderbilt University including the academic campus, Vanderbilt University Medical Center, and a variety of University-owned facilities throughout the Davidson County area. Non-commissioned and commissioned officers staff the department. Commissioned officers are empowered to make arrests as "Special Police Officers," through the authority of the Chief of Police of the Metropolitan Government of Nashville and Davidson County. Vanderbilt officers with Special Police Commissions 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.

The Police Department includes a staff of more than 100 people, organized into two divisions: operations and administration. All of Vanderbilt's commissioned officers have completed officer training at a state certified police academy. Those officers hold Special Police Commissions and are required to attend annual in-service, as well as on-the-job training. The department also employs non-academy-trained officers for security-related functions and as part-time student security officers.

The Police Department has several services and programs in place to help protect and educate the Vanderbilt community.

Vandy Vans—The Police Department administers the Vandy Vans escort system at Vanderbilt University. The main component of the system is a van

service that provides vehicular escorts to designated locations on campus. The van service consists of two vans that operate from dusk to 2:00 a.m. (5:00 a.m. on Saturday and Sunday mornings).

One van makes a continuous loop around campus, taking approximately thirty minutes, making the following ten stops: Police Headquarters, Lupton dormitory at Branscomb Quad, 24th Avenue between Carmichael Towers East and West, Kissam Quad at Hemingway, Wesley Place Garage, Hill Student Center, North Hall, the Blair School of Music, Highland Quad at Morgan Circle, and McGugin Center.

A second van runs an express route stopping at the following locations: Lupton dormitory at Branscomb Quad, Kissam Quad at Hemingway, North Hall, and Highland Quad at Morgan Circle.

Stops 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 their stop to their final destination. A van is also accessible to students with mobility impairments.

As a supplement to the Vandy Vans escort system, walking escorts are available for students walking to and from any location on campus during the nighttime hours. Walking escorts are provided by VUPD officers. The telephone number to call for a walking escort is (615) 421-8888 (off campus) or 1-8888 (on campus).

Emergency Phones—More than 100 emergency telephones are located throughout the University campus and Medical Center parking areas. Using one of these phones will connect the caller directly to the Police Communications Center. An open line on any emergency phone will activate an emergency response from an officer.

Lost and Found—Recovered property may be turned in at any time to the Police Department. Inquiries about lost items may be made by contacting VUPD's Lost and Found Office, Monday through Friday, 8:30 a.m. to 4:00 p.m. The telephone number is (615) 343-5371.

The Office of Crime Prevention for the Police Department offers several programs and services to the Vanderbilt community. It includes a variety of topics including sexual assault, domestic violence, workplace violence, personal safety, RAD (Rape Aggression Defense) classes, and victim assistance. For further information on available programs and services, call (615) 322-2558 or e-mail crimeprevention.atwood@vanderbilt.edu.

Additional information on security measures, programs and services, and crime statistics for the Vanderbilt community is available from the Police Department, 2800 Vanderbilt Place, Nashville, TN 37212. Information is also available at <http://police.vanderbilt.edu>.

Campus Security Report

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, Vanderbilt University will provide you, upon request,

an annual Security Report on University-wide security and safety, including related policies, procedures, and crime statistics. 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. You may also obtain this report on the Web site at <http://police.vanderbilt.edu/secatvu.htm>.

Extracurricular Activities

Student Governance

The Student Government Association (SGA) provides a number of activities, programs, and services through its seven divisions: the Student Senate, composed of representatives from each class and school, and six program and policy-making divisions composed of both appointed and elected student officials.

Students are encouraged to become involved with the SGA through the Student Senate or committees and to participate in the student association or council of their own schools. The Freshman Leaders Program (FLP) solicits applications from new students each fall. FLP provides an opportunity for leadership development through interactions with administrators and involvement in Student Government activities.

For more information, see the Web site, www.vanderbilt.edu/sga.

The SGA Office is in the Sarratt Student Center, where adviser Courtney Salters also has an office.

Community Service

Community service is an important part of the student experience at Vanderbilt. Nashville's vibrant urban neighborhoods provide ample opportunities for students to make real-life connections to their studies, achieving both personal growth and meaningful action through work with the community. The Office of Active Citizenship and Service (OACS) facilitates student involvement and advocacy throughout the Nashville area. OACS encourages students to become involved in a wide array of active citizenship organizations ranging from Habitat for Humanity, Amnesty International, the Sierra Club, Vanderbuddies, and the Vanderbilt Prison Project to VanderVotes and Vandy-Cares. The service opportunities are many and varied. OACS offers students the chance not only to build relationships with other students and those in need in the community; it also encourages students to critically analyze the issues in American life that create the need for so many volunteers and to empower themselves and others to challenge those inequities.

The University is justly proud of student efforts. Support for students comes through educational and outreach programs of the OACS, the Ingram Community Service Scholarship, and a well established Alternative Spring Break (ASB) program that sends approximately 300 students across the country and to foreign countries. ASB participants serve our far-flung neighbors

during the March vacation. In addition, interest in community service and the presence on campus of several well-known Service-Learning scholars have resulted in a growing number of Service-Learning courses that combine academics with hands-on service. These courses are very popular and many students find them to be among their most rewarding college experiences.

Student government, religious and ethnic organizations, political clubs, athletic teams, and fraternities and sororities all participate in community service activities. With a wealth of campus and community resources across disciplines and organizations, the student interested in community service can find opportunities in virtually any area. More information is available at www.vanderbilt.edu/oacs.

Sarratt Student Center

The Sarratt Student Center (www.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 cinema; an art gallery; art studios and darkrooms for classes and individual projects; work and office spaces for student organizations; comfortable reading and study lounges fully wired for Internet access; large and small meeting rooms; and large, open commons and courtyard areas for receptions or informal gathering. The center also houses the Pub (Overcup Oak) restaurant and Stonehenge Cafe, and leads directly to Rand Dining Room, the Varsity Market, and the Bookstore. The Vanderbilt Program Board plans concerts, film screenings, classes, speakers, receptions, gallery showings, and many other events throughout the campus. The center's Welcome Desk serves as a campus information center and is a Ticketmaster™ outlet, handling ticket sales for most of the University's and Nashville's cultural events. Sarratt Student Center is home to the Division of Student Life, the Office of Greek Life, the CARD Office, and Vanderbilt Student Communications (including student newspaper, radio station, and yearbook).

Vanderbilt Student Communications, Inc. (VSC)

VSC has jurisdiction over the campus radio station, Vanderbilt Television, and undergraduate publications that are supported by the student activities fee. VSC functions chiefly to elect editors, 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 *Hustler*, the campus newspaper; *Versus*, a magazine; the *Commodore* yearbook; WRVU, the student-operated FM radio station; *The Vanderbilt Review*, an annual literary-photo magazine; Vanderbilt Television; *Orbis*, a liberal viewpoint publication; *The Torch*, a conservative viewpoint publication; *The Slant*, a humor publication; and *Spoon*, an art and travel magazine.

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 scuba, 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; a Wellness Center; and the Time-Out Cafe. Lighted outside basketball and sand volleyball courts 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.

Thirty-six sport clubs, many 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 softball diamonds. The ten acres of playing fields are irrigated and maintained to assure prime field conditions, and they are lighted for night use.

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

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 Missouri Valley Conference, the American Lacrosse Conference, and NCAA. Women's teams compete in basketball, golf, tennis, cross country, soccer, lacrosse, and indoor and outdoor track. Men's teams compete in the Southeastern Conference in football, basketball, baseball, golf, tennis, and cross country. Men's soccer is in the Missouri Valley Conference. Women's Lacrosse is in the American Lacrosse Conference.

Cultural Activities on the Campus

Working through volunteer student committees that plan and execute the programs, Sarratt Student Center and Office of Student Activities sponsor twelve to fifteen dance, music, and theatre events each year, featuring renowned artists. Student committees select the artists and handle all arrangements for the performances.

Three campus galleries regularly exhibit the work of recognized artists as well as students. 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.

Noncredit classes at all levels are offered in a wide variety of dance styles, including ballet, modern, jazz, ballroom, and ethnic dance. Master classes are given on a regular basis. Momentum, the student dance company, sponsors a dance concert at the end of each 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.

Opportunities are available for student musicians in several groups. The Concert Choir and Chamber Singers; Chamber Choir, Symphonic Choir, and Opera Theatre; Vanderbilt Orchestra and Chamber Orchestra; and the Wind Ensemble and Jazz Band present a number of campus concerts each year.

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.

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 student body with high standards of scholarship and personal character with serious educational aims. An admissions policy that governs the selection process has 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 members are available to answer questions, arrange for 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 (Latin, Greek, or a modern 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. 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.

Blair School of Music. It is strongly recommended that applicants have at least 4 units of English, 2 units of algebra, 1 unit of plane geometry, 1 unit of history, and 2 units of a single foreign language. Students with fewer units may be offered admission but must complete the missing work at Vanderbilt.

Audition/Portfolio. Applicants to the Blair School performance degree program are required to audition on their primary instrument (or in voice). Auditions will be held at the school on December 4, January 28/29, February 11/12, and February 25/26. A high-quality cassette tape is usually an acceptable substitute for applicants living outside a 400-mile radius of Nashville. Any student who is unable to travel to campus or to attend a scheduled audition weekend should contact the Blair School to discuss alternate plans. All applicants to the musical arts degree program may audition by cassette. Students seeking admission to the composition/theory degree program must interview and present a portfolio of original compositions. Any student auditioning on percussion must do so in person; tapes are not acceptable for this program.

School of Engineering. It is strongly recommended that applicants have at least 4 units of English, 2 units of algebra, 1 unit of geometry, 1 unit of trigonometry, and 2 units of science. 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. Applications for admission are available from the Office of Undergraduate Admissions. Applicants must submit the various parts of the application by January 7 for consideration for admission for the following fall semester. Certain scholarships require additional application materials; interested students should contact the Office of Undergraduate Admissions for more information. Applications for admission submitted after January 7 will be considered, provided space is available. Admission decisions will be mailed by April 1.

2. At the time of filing an application, applicants must arrange for their high school to send a 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.

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 regular application for admission, available from the Office of Undergraduate Admissions, and return all parts with the appropriate Early Decision Plan box checked and the \$50 nonrefundable application fee postmarked November 1 for Early Decision I and January 7 for Early Decision II.

2. Sign the statement that Vanderbilt is your first choice, affirm your intention to enroll at Vanderbilt if offered admission under the Early Decision plans, and agree to withdraw applications to other colleges if admitted. Have your parent and guidance counselor sign this statement also.

3. Have an official high school transcript through the junior year sent to the Office of Undergraduate Admissions, with a list of courses being taken and to be taken in the senior year.

4. Have the testing agency send Vanderbilt the official scores of SAT-I and/or ACT. Scores appearing on official high school transcripts are acceptable.

5. Blair School of Music applicants must audition or submit a portfolio (see Audition/Portfolio in the section on Academic Preparation above) by December 4 for Early Decision I and by January 28–29 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 in the spring. Applicants who are deferred until spring are encouraged to submit additional test scores, seventh semester transcripts, 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 the 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 7 of the junior year in high school. Additional examinations may be required. Other criteria will also be considered, such as maturity and motivation.

Advanced Placement

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 decided on the basis of good performance on the College Board Advanced Placement Examinations, on the College Board SAT II Subject Tests, 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), or similar tests, such as the French *baccalauréat* 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 Credit

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

United States Government and Politics. Grade of 4 or 5 earns 3 hours credit for Political Science 100.

United States History. Grade of 4 or 5 earns 6 hours credit for History 170–171.

Biology. Grade of 4 or 5 earns 4 hours credit for Biological Sciences 100.

Chemistry. Grade of 5 earns 8 hours credit for 102a–102b and 104a–104b. A grade 4 permits entry into Chemistry 218a.

Comparative Government and Politics. Grade of 4 or 5 earns 3 hours credit for Political Science 101.

Computer Science. Grade of 4 or 5 on the A or AB examination earns 3 hours credit for Computer Science 150.

Economics. Grade of 4 or 5 in macroeconomics earns 3 hours credit for 100; grade of 4 or 5 in microeconomics earns 3 hours credit for 101.

English. Grade of 4 or 5 in English language and composition or English literature and composition earns 6 hours credit for English 104W and 105W.

Environmental Science. Grade of 4 or 5 earns 4 hours of credit for Geology 104.

European History. Grade of 4 or 5 earns 6 hours credit for History 100–101.

Art. Grade of 4 or 5 in art history earns 6 hours credit for Art and Art History 110–111. Grade of 4 or 5 in art studio earns 6 hours credit.

French. Grade of 4 or 5 in language earns 8 hours credit for French 103 and 201. Grade of 4 or 5 in literature earns 8 hours credit for 103 and 220.

German. Grade of 4 or 5 in language earns 6 hours credit for German 103 and 104.

Latin. Grade of 4 or 5 in Vergil earns 3 hours credit for Latin 104. Grade of 4 or 5 in Latin Literature earns 3 hours elective credit at the 200 level.

Mathematics. Grade of 4 or 5 earns up to 8 hours credit in analytic geometry and calculus. The precise amount of credit depends on the Advanced Placement test (AB or BC) and on the mathematics course, if any, in which the student enrolls at Vanderbilt.

Music. Grade of 5 in music theory earns two hours credit for MUSC 120a or 121; a grade of 4 may earn credit pending evaluation by the department. A grade of 4 or 5 in music listening and literature may earn three hours credit in MUSL 141 pending evaluation by the department.

Physics. Grade of 4 or 5 in the B examination earns 8 hours credit for Physics 110a–110b and 111a–111b. Grade of 4 or 5 in the C examination earns 4 hours credit for Physics 116a or 117a.

Psychology. Grade of 4 or 5 earns 3 hours credit for Psychology 101.

Spanish. Grade of 4 in language or literature earns 5 hours credit for Spanish 104; grade of 5 earns 8 hours credit for 104 and 202.

Statistics. Grade of 4 or 5 earns 3 hours credit for Mathematics 127a.

The amount of credit that may be awarded corresponds to the amount of course work waived, up to a maximum of 8 hours in any one field. Advanced Placement credit does not affect the Vanderbilt grade point average. Students are limited to a total of 30 credit hours earned by any combination of advanced placement and credit by departmental examination.

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.

Biology. Score of 6 or 7 (subsidiary or higher) earns 4 hours credit for Biological Sciences 100.

Chemistry. Score of 6 or 7 (applied subsidiary) earns 8 hours credit for 101a–101b or (higher) Chemistry 102a–102b and 104a–104b.

Economics. Score of 6 or 7 (higher) earns 6 hours credit for Economics 100 and 101.

English. Score of 6 or 7 (subsidiary) earns 3 hours credit for English 100W or (higher) 6 hours credit for English 104W and 105W.

French. Score of 6 or 7 (subsidiary) earns 5 hours credit for French 103 or (higher) 5 hours credit for French 103 and 3 hours elective credit.

History. Score of 6 or 7 (higher) earns 3 hours elective credit.

Japanese. Score of 6 or 7 (subsidiary) earns 10 hours credit for Japanese 211–212 or (higher) 6 hours credit for Japanese 241–242.

Latin. Score of 6 or 7 (subsidiary) earns 3 hours credit for Latin 103 or (higher) 6 hours credit for Latin 103 and 104.

Mathematics. Score of 6 or 7 (subsidiary) earns 7 hours credit for Mathematics 140 and 180 or (higher) 8 hours credit for 155a and 180 and 1 hour elective credit.

Music. Score of 6 or 7 (subsidiary) earns 3 hours credit for MUSL 140 or (higher) 3 hours credit for MUSL 141.

Physics. Score of 6 or 7 (subsidiary) earns 6 hours credit for Physics 110a–110b or (higher) 8 hours credit for Physics 117a–117b.

Psychology. Score of 6 or 7 (subsidiary or higher) earns 3 hours credit for Psychology 101.

Russian. Score of 6 or 7 (subsidiary) earns 5 hours credit for Russian 102 or (higher) 6 hours credit for Russian 203–204.

Spanish. Score of 6 or 7 (subsidiary) earns 5 hours credit for Spanish 104 or (higher) 5 hours credit for Spanish 104 and 3 hours elective credit.

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 freshmen who have taken pre-freshman college work during their junior or senior year in high school or during summers prior to their offer of admission to Vanderbilt must report such work to the Office of Undergraduate Admissions. At the student's request, the dean of the appropriate undergraduate school will determine whether such work may be credited toward the Vanderbilt degree. 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. *This question of credit at Vanderbilt must be settled in advance of the student's first registration.*

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 satisfy CPLE 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 native language is not English are encouraged to present the results of the Test of English as a Foreign Language (TOEFL). Recommended scores for Vanderbilt are 230 (computer-based exam) or 570 (paper exam). You may access information regarding the TOEFL exam, including registration and sample tests, at www.toefl.org. Inquiries and requests for application forms should be addressed to TOEFL, Box 6151, Princeton, New Jersey 08541-6151, U.S.A.

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 VU 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, Peabody Box 510, Nashville, Tennessee 37203-5701, U.S.A.; www.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. 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. The form to apply for this aid is contained in the applications. Admission for international students is "need-aware"; the larger the amount of financial aid needed, the greater the competition for admission.

Health and Accident Insurance. International students and their dependents residing in the United States are required to purchase the University's international student health and accident insurance unless, in the

judgment of the University, adequate coverage is provided from some other source. Information concerning the limits, exclusions, and benefits of this insurance may be obtained from Student Health Services.

Information. Assistance in non-academic matters before and during the international student's stay at Vanderbilt is provided by International Student and Scholar Services, VU Station B #351568, Nashville, Tennessee 37235-1568, U.S.A.; www.vanderbilt.edu/iss.

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 fall and summer admission is February 1, and the extended deadline is April 1. The deadline for spring admission is November 1.

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

1. Meet all freshman admission requirements, including results from either the SAT I and/or 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 (or 60 hours) of full-time work. Two of these semesters (or 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. 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 University.

College of Arts and Science. Transfer students must complete at least 60 hours of work in the College.

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

Students may request transfer from one undergraduate program of the University to another 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 want to enter.

Applications are available on the University Registrar Web site and should be submitted to the University Registrar's Office by November 19 for the spring session and April 30 for the summer or fall sessions of the following year.

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.

Students applying to the Blair School of Music must audition as part of the process. Students applying to the College of Arts and Science must meet the above requirements in transferable work as defined by the College of Arts and Science, as well as have the above stated grade point average in the five most recently completed courses in the College Program of Liberal Education (CPLÉ), repeat courses excluded.

Division of Unclassified Studies

The Division of Unclassified Studies provides an opportunity to take courses at Vanderbilt to the following: a) adults not interested in working toward a degree, b) transient 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) high school students who have received special permission to enroll in courses for college credit.

Such students register with 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.

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. Applications can be obtained by calling the University Registrar's Office, or from the Vanderbilt Web site.

All University regulations, including the Honor System, apply to students registered in the division.

Degree candidates have priority in enrollment at Vanderbilt, and students registering in the Division of Unclassified Studies should be prepared for this contingency. Tuition is charged at the standard rate.

Students enrolled in the Division of Unclassified Studies are not charged student activity, recreation center, or health insurance fees, and do not have access to recreation or student health services. Students enrolled in the Division of Unclassified Studies as full-time students (particularly transient 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 May Session. 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 (transient 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, 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.

May Session

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 May session. Housing and food services are provided during the session.

Transient students are eligible for May session courses.

Financial Information

TUITION for undergraduates for the 2004/2005 academic year is \$29,240 (\$14,620 a semester). A \$610 laboratory equipment fee is charged for students enrolled in the School of Engineering (see note below*). A full-time undergraduate student takes 12 to 18 hours. Students taking more than 18 hours per semester are charged \$1,218 per hour for each extra hour. Students who, for approved reasons, enroll for fewer than 12 hours are charged \$1,218 per hour, with a minimum tuition charge of \$1,218 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 \$41,413 a year, itemized as follows:

Tuition (2004/2005)	\$29,240
Room and board (estimate)	9,836
Books and supplies (estimate)	1,030
Student activities and recreation fees (estimate)	750
Hospitalization insurance	557

Other Academic Fees

Application fee	\$ 50
Engineering laboratory fee (semester) — see note below	305*
Late registration fee	30
Senior-in-absentia minimum semester tuition charge (hourly rate)	1,218
Special examination fee	5
Credit by departmental examination fee	50

Special charges for the use of the University computer are added to the cost for some courses.

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*.

*Note regarding Engineering laboratory fee: Freshman students \$2,850/year, Upperclass students \$610/year.

Payment of Tuition and Fees

Tuition, fees, and all other University charges incurred prior to or at registration are due and payable by August 17 for the fall semester and January 5 for the spring semester. All charges incurred after classes begin are due and payable in full by the last 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 additional charges to campus dining or flexible spending accounts may be prohibited. Visit our Web site at www.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 returned by the bank and reserves the right to invoke the laws of the State of Tennessee governing bad checks.

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 who are dismissed from the University for any reason may be entitled to a partial refund in accordance with the established schedule shown 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. You may visit www.collegerefund.com for more information or to apply online.

Fall 2004 Withdrawal/Refund Schedule

Week 1	August 23–August 28	100%
Week 2	August 29–September 4	95%
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	70%
Week 7	October 3–October 9	60%
Week 8	October 10–October 16	55%
Week 9	October 17–October 23	50%
Week 10	October 24–October 30	40%

No refund after October 30, 2004

Spring 2005 Withdrawal/Refund Schedule

Week 1	January 10–January 15	100%
Week 2	January 16–January 22	95%
Week 3	January 23–January 29	85%
Week 4	January 30–February 5	80%
Week 5	February 6–February 12	75%
Week 6	February 13–February 19	70%
Week 7	February 20–February 26	60%
Week 8	February 27–March 4	55%
<i>Spring Break</i>	March 5–March 12	
Week 9	March 13–March 19	50%
Week 10	March 20–March 26	40%

No refund after March 26, 2005

Tuition Payment Programs

Two voluntary programs are available through Tuition Management Systems (TMS): The Vanderbilt Ten-Month Interest Free Monthly Payment Plan and the Tuition Stabilization Plan. The interest-free payment option is one of the best ways to fit education costs into a monthly budget without borrowing. The Tuition Stabilization Plan allows families to pre-pay up to four years of tuition, thereby eliminating any worry of future tuition increases. Plan details are available upon request from the Office of Student Accounts by calling (615) 322-6693 or (800) 288-1144. You may also visit our Web site at www.vanderbilt.edu/stuaccts, e-mail us at student.accounts@vanderbilt.edu, or send a fax to (615) 343-8511.

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.

Financial Clearance

Students will not be permitted to attend 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.

Transcripts

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

Fraternity and Sorority Membership

Cost of fraternity or sorority membership averages between \$400 and \$500 per year. This does not include meals or housing.

Need-Based Financial Aid

For students who require financial assistance, three forms of need-based aid are available: 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.

Application Procedure

Prospective students need to complete a Free Application for Federal Student Aid (FAFSA) and a College Scholarship Service PROFILE Registration and Application. The FAFSA may be obtained from the student's high school guidance counselor or completed online, www.fafsa.ed.gov. Students may register for the CSS PROFILE by calling the College Scholarship Service, (800) 778-6888, or register and complete a PROFILE Application online, www.collegeboard.com. The student must then complete the PROFILE registration process no later than January 15 and submit the FAFSA and PROFILE Application no later than February 1 of the senior year in high school. Further information regarding the application process is available from the Office of Student Financial Aid.

Students must reapply for financial aid each year, by submitting a Vanderbilt Financial Aid Application, CSS PROFILE Basic Application, 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 state student aid funds. Renewal of University need-based assistance requires a minimum cumulative GPA of 2.25 for the sophomore year and 2.5 for the 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 Registration and Application. Students may register for the CSS PROFILE by calling the College Scholarship Service, (800) 778-6888, or students may register and complete a PROFILE Application online, *www.collegeboard.com*. Early Decision I applicants should complete the PROFILE registration process no later than October 15 and submit the PROFILE Application no later than November 1 of the senior year in high school. Early Decision II applicants should complete the PROFILE registration process no later than December 15 and submit the PROFILE Application no later than January 1 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 1. The original estimated aid award will be confirmed or revised, as appropriate, after the FAFSA and PROFILE together are reviewed by the Office of Student Financial Aid.

Federal and State Aid

Financial aid is available from several federal and state student financial aid programs. Any citizen or permanent resident 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 Stafford Loan Program
- Federal 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 Academic Progress for Student Financial Aid – Undergraduate Students

For full-time undergraduate students, a maximum time frame of five years (ten semesters) is established for attainment of the baccalaureate degree, and federal financial assistance will be limited to a maximum of five years. 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. 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 on academic probation for one or more additional semesters in order to correct their academic deficiencies.

Satisfactory Progress Standards – Federal/State Recipients

The academic progress and performance of all financial aid applicants will be reviewed by the Office of Student Financial Aid at the end of each academic year and satisfactory progress will be verified by the Financial Aid staff before an award of Federal/State 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 the undergraduate school, the financial aid award will be for one probationary semester only and further review will be required at the end of the probationary semester. Beginning with the 1998/1999 academic year, one change has been made to the awarding of probationary semester awards. In the past, all aid has been awarded for one semester only. We are now awarding the Federal Stafford and PLUS loans for the full academic year. At the close of the probationary semester, we will review the student's academic progress. If the student has not progressed and the aid must, therefore, be suspended, we will return (or cancel) the second disbursement of the Stafford and PLUS loans.

Financial Aid Probation

During the probationary semester, students must earn a minimum of 12 hours and a GPA of 2.0 and qualify for the next higher class level in order to continue receiving Federal/State financial assistance for the following

semester. After qualifying for junior standing, all full-time aid recipients are expected to earn a minimum of 12 hours per semester and a GPA of 2.0 (1.9 in Engineering).

Students who fail to earn the minimum credit hours and GPA specified above during the 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. After receiving aid for one probationary semester, students who then consistently earn a minimum of 12 hours per semester with a minimum 2.0 GPA will be considered to be making satisfactory progress for purposes of receiving Federal student aid provided that they do not exceed the maximum time frame for degree completion as specified by the undergraduate school.

Students who are terminated from Federal/State financial assistance may have such aid reinstated by subsequently attaining the minimum cumulative credit hours and GPA required for the appropriate time increment.

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 to be eligible for Federal/State 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.

Satisfactory Progress Standards – Institutional Aid Programs

University need-based grants are typically awarded for the academic year to undergraduate students on the basis of financial need, grade point average, and academic progress. The minimum required cumulative GPA for renewal of University need-based grant funds is a 2.00 after the freshman year, but we 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.

For students who fail to complete the required credit hours within the specified time frame and/or fail to maintain the minimum GPA stipulated above, the need-based grants will be terminated.

Typically, students are notified prior to the academic year that they may appeal for a reinstatement of grant funds if the number of required credit hours to advance to the next higher level is achieved and/or their overall GPA is raised to the 2.00 level in the following subsequent semester. It will be the responsibility of the student to contact the Office of Student Financial Aid to request the reinstatement of Institutional aid.

Appeal and Reinstatement Procedures for All Students

Any student whose Federal/State/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.

The appeal will be considered by the director of financial aid or his/her designate, with the right for further appeal to the associate provost for academic affairs. 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, eligibility for Federal/State/Institutional student aid funds may be reinstated on a probationary basis by a financial aid officer.

Student Employment

On-Campus Jobs. Students interested in part-time on-campus employment should contact the Student Employment Office, in the Office of Student Financial Aid, 2309 West End Avenue, Room 324. 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). Students and other interested individuals may pursue job opportunities and view other student employment related information at www.vanderbilt.edu/financialaid/fwsstudy.htm.

Off-Campus Jobs. Students interested in part-time off-campus employment should inquire at the Career Center, 110 Alumni Hall, which acts as a clearinghouse for jobs offered to students by off-campus employers. Jobs off-campus often are in sales or service and pay about minimum wage. Many involve a consistent schedule of Monday through Friday early evening hours, fifteen or more a week, and continue during examinations and semester interims.

The Career Center also maintains directories and some resource information about summer or interim jobs in recreation, education, community service, government, business, and industry.

University General Medals, Prizes, and Awards

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 JESSICA ACESTE 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 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.

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 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 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 fine arts with the highest grade point average.

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 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 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 MARGARET STONEWALL WOOLDRIDGE HAMBLET FELLOWSHIP was endowed in 1985 by Clement H. Hamblet and Margaret H. Sarnier, 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 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 string major seeking the bachelor of music degree.

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 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 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 guid-

ance. 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 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 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 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 professional advancement.

THE AWARD FOR OUTSTANDING RESEARCH IN MOLECULAR BIOLOGY is presented to a senior for outstanding research performed in the molecular biology major program.

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

THE STEIN STONE MEMORIAL AWARD was established in 1984 by Mrs. Stone in memory of her husband, James N. "Stein" Stone, an "All Southern" center for the football team from 1904–1907. It is presented to a senior who has lettered in varsity sports 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 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 VANDERBILT UNIVERSITY 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 C. WATTLES FELLOWSHIP was established in 1969 by Walter C. Wattles (B.A. 1936), Atlanta, Georgia. It is awarded to three outstanding graduating senior women who will spend one year in an international insurance training program at Lloyd's of London.

THE SUSAN FORD WILTSHIRE ESSAY PRIZE is cosponsored by the Women's 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

1

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 need only complete their application for admission to the University by January 1. 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 Native Americans 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, a Peabody graduate in the class of 1957. Mr. Carell is chairman of Central Parking System, a Nashville philanthropist, and Vanderbilt University Board of Trust member since 1991. The full-tuition scholarships are based on academic achievement, extracurricular activities, financial need, and student employment.

CHANCELLOR'S SCHOLARSHIPS FOR OUTSTANDING MINORITY STUDENTS, initiated in 1985 by Chancellor Joe B. Wyatt, are funded with gifts from alumni, faculty, staff, students, corporations, and friends. These full-tuition scholarships are available to minority students from all regions. The program includes a stipend, not to exceed \$4,200, for a summer of study or a research opportunity in a Vanderbilt program, either in Nashville or abroad, after the sophomore or junior year.

THE CHRONICLERS OF DISCOVERY SCHOLARSHIP was established in 1998 for students who will pursue a course of study and a career in the communication of science, engineering, and technology. This contract interdisciplinary major can prepare students for a variety of careers, including science journalism, public health, public relations, environmental law, and technical management. A panel of judges from Vanderbilt, NASA, Discovery Communications, and the U.S. Space and Rocket Center choose one winner annually, who must also apply to the College of Arts and Science through regular admission channels. Winners receive a full tuition scholarship and a summer internship at the Discovery Channel. Applications may be obtained from the Office of Undergraduate Admissions, and must be completed by January 15.

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 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 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 offices of Active Citizenship and Service, Campus Student Services, and Undergraduate Admissions. For more information call the Ingram Scholarship Program at (615) 322-3963 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.

LANIER FAMILY SCHOLARSHIPS are a part of the Chancellor's Scholarship program. Funded with gifts from the Lanier family and friends, these full-tuition scholarships are available to minority students from the Atlanta area and Georgia.

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 an entering freshman 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 prospective 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 Miss Dinah Shore (B.A. 1938). After a distinguished career in entertainment, she died in 1994.

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.

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 each of the following schools: Blair School of Music, 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

DEAN'S SELECT SCHOLARSHIPS provide 75 percent of tuition and are awarded each year to a varying number of entering freshmen.

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 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 the Study Abroad Program.

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 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 sophomore majoring in physics or physics–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 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 PICHOS 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 the Study Abroad Program.

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 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 award provides full tuition.

THE FRED RUSSELL–GRANTLAND RICE SCHOLARSHIP FOR 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. The award is available to an entering freshman who plans a career 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 award provides full tuition.

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.

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 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.

Blair School of Music Honor Scholarships

BLAIR DEAN'S HONOR SCHOLARSHIPS are awarded each year to selected students entering the Blair School. The annual stipend provides partial tuition.

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 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 serves as the University organist.

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; and Mr. Steve Turner (B.A. 1969) and Mrs. Turner. Preference is given to a student majoring in piano. The award provides full tuition.

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 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 RAE S. MILLER PIANO SCHOLARSHIP was established in 1987 by Martin and Enid Katahn to honor Mrs. Katahn's mother, Rae S. Miller. The \$5,000 award is given to a piano major.

THE WILDA AND WILLIAM MOENNIG SCHOLARSHIP was established in 1987 in memory of Blair's distinguished master luthier by his wife, Wilda Tinsley Moennig. The \$12,000 annual award is given to a string major.

THE KENNETH L. AND ANNE FOSTER ROBERTS SCHOLARSHIP was endowed in 1993 by Kenneth L. Roberts (B.A. 1954, J.D. 1959) and his late wife, Anne Foster (B.A. 1955). Financial need is a consideration in selecting recipients.

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 WILMA WARD SCHOLARSHIP was inspired by Anne Potter Wilson's legacy of service and generosity to the Blair School of Music. Established in 1995 by Wilma Ward, the scholarship provides four half-tuition awards for four years of study.

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 Bayer Scholarship provides full tuition.

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 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 EL PASO ENERGY SCHOLARSHIP, formerly the Sonat Foundation Engineering Scholarship, was endowed in 1979 by the Sonat Foundation. Sonat Inc. was acquired by El Paso Energy in 1999. The renamed scholarship is awarded to deserving juniors or seniors who are majoring in mechanical, civil, and electrical engineering and is renewable contingent upon continued qualification.

THE EL PASO ENERGY DIVERSITY SCHOLARSHIP, formerly the Sonat Foundation Diversity Engineering Scholarship, was endowed in 1994 by the Sonat Foundation. Sonat Inc. was acquired by El Paso Energy in 1999. The renamed scholarship is awarded to deserving minority students who are juniors or seniors majoring in mechanical, civil, or electrical engineering.

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

THE JAMES GEDDES 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. The scholarship is awarded to students from the six states (Alabama, Florida, Kentucky, Louisiana, Mississippi, and Tennessee) originally traversed by the railroad.

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 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 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. Preference is given to students at the sophomore level or higher who work part time to finance their education.

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 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 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 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.

JAMES WILLIAM STEWART JR. HONOR SCHOLARSHIPS were 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 J. LAWRENCE AND BARBARA B. WILSON SCHOLARSHIP was established in 2002 by J. Lawrence Wilson (B.E. 1958) and his wife, Barbara Burroughs Wilson, an Arts and Science graduate in the class of 1958. The scholarship will be based on academic achievement and leadership.

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

Peabody College Honor Scholarships

DEAN'S SELECT SCHOLARSHIPS provide 75 percent of tuition and are awarded each year to a varying number of entering freshmen.

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 healthcare 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 4th 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 was established in 1991 by the Reeves Foundation to honor Katherine Mercer Reeves (P.B.S. 1992, P.M.Ed. 1993). The scholarship is awarded to students majoring in early childhood or elementary education. A second Reeves Scholarship was established in 1997.

THE WEEKLEY FAMILY HONOR SCHOLARSHIP was endowed in 2002 by Mr. and Mrs. David M. Weekley, of Houston, Texas. The Weekley Family Honor Scholarship Fund will provide half-tuition honor scholarships to deserving undergraduate students enrolled in Peabody College.

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 GRANT PROGRAM, funded by the undergraduate schools, makes grants available to applicants who need assistance to enroll or continue their study at Vanderbilt. These grants are based on financial need and academic performance. 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 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 PHIL 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 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 FELIX 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 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 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 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 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 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 Northern Alabama. Secondary preference is given to students from broader Southeastern region.

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 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 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 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 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 PARISH FAMILY/WORTH INC. SCHOLARSHIP was established in 1999 by John L. Parish, Sr. (B.A. 1959) to celebrate his fortieth class reunion. His sons, Robert (P.B.S. 1988, M.B.A. 1990) and John, Jr. (P.B.S. 1990), and John's wife, Ann Noel (B.A. 1990), also support the fund.

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 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 ANNUAL QUINQ SCHOLARSHIP FUND was established in the spring of 2000 to enrich the academic lives of deserving undergraduate students. Quinqs are Vanderbilt alumni who have graduated fifty or more years ago.

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 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 full four-year degree program, or five years if within the School of Engineering.

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 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 I. B. TIGRETT-E. E. WILSON SCHOLARSHIP was established in 1954 by Elmer Edwin Wilson (B.A. 1921, LL.B. 1924). Preference is given to residents of Davidson and Madison counties in Tennessee.

THE HILL TURNER 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 UNDERGRADUATE SCHOLARSHIP FUND FOR UNIVERSITY GENERAL was established in 1993 with gifts from several donors.

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 C. F. WALL SCHOLARSHIP was established in 1925 through the will of Mr. C. Flem Wall. It is awarded to students from Middle Tennessee, with preference being given to residents of Williamson County.

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.

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.

Loan Funds Available to Students in All Schools

The FAFSA and the PROFILE are used to determine borrowing eligibility.

THE FEDERAL PERKINS LOAN PROGRAM enables the University to provide low-interest loans to students. 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.

THE VANDERBILT AID SOCIETY LOAN FUND, raised by yearly contributions of members of the Vanderbilt Aid Society, makes about \$40,000 available for new loans each year. Loans are repayable at 7 percent simple interest over a six-year period following departure from Vanderbilt. Interest does not accrue while the borrower is enrolled at Vanderbilt.

THE FEDERAL STAFFORD LOAN PROGRAM provides loans through banks and other commercial lenders for up to \$2,625 for the first year, \$3,500 for the second year, and \$5,500 for each subsequent undergraduate year, with liberal terms including deferment of repayment while one is enrolled as at least a half-time student. Need-based eligibility must be established for the subsidized Stafford Loan, whereas need-based eligibility is not required for the unsubsidized Stafford Loan. However, the aid application materials must be completed for both loan types in order to determine total eligibility.

THE VANDERBILT UNIVERSITY UNDERGRADUATE EDUCATION LOAN PROGRAM provides loans to assist students beyond existing federal and other student loan programs. The interest rate is variable and loans are repayable within a period of ten to twenty years (depending upon the amount borrowed). Repayment begins immediately following graduation or less than half-time enrollment status at Vanderbilt.

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/Quachita Parish; northeastern Louisiana; and Louisiana, in that order.

THE ANGIE AND SAMUEL ALLEN SCHOLARSHIP was established in 1998 by Samuel E. Allen (B.A. 1958) and his wife, Angie, to celebrate his fortieth class reunion.

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

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 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 MATT AND VIOLA CARLOSS SCHOLARSHIP was established in 1978 by John Raymond "Matt" Carlross, 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 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 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 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 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 WILLIAM H. AND SUSAN C. EASON SCHOLARSHIP was endowed in 1998 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 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 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 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 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 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 VANCE AND JULIE LANIER MINORITY SCHOLARSHIP was endowed in 1980 by Vance W. Lanier (B.A. 1961).

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 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 are Jewish, if known to the University, and to African-American students from these cities.

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

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, the late Miss Lillian Bayer of Cumberland City, Tennessee.

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

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 OSCAR GUSTAF NELSON SCHOLARSHIP was established 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 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 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 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 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 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 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 A. L. SELIG SCHOLARSHIP was established in 1981 by Bebe Selig Burns (B.A. 1968) in memory of her grandfather.

THE ELIZABETH MORGAN SPIEGEL SCHOLARSHIP was established in 1999 by Elizabeth Morgan Spiegel to celebrate her fortieth class reunion.

THE GEORGE AND PEGGY WEISE SPIEGEL SCHOLARSHIP was endowed in 2003 to provide need-based scholarship assistance to deserving students. This is the second scholarship endowed by George Spiegel (B.E. 1948) and his wife Peggy Weise Spiegel (B.A. 1948). The scholarship will rotate on a four-year cycle between the School of Engineering and the College of Arts and Science.

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 EDMOND SAWYER STONE, BELO STONE, M.D., AND LARRY STONE JR. SCHOLARSHIP was established in 1979 by Dr. Lawrence A. Stone (B.A. 1954) to honor his father, Belo Stone (M.D. 1927), and the memories of his mother, Sara (A 1927) and his son, Larry, Jr. Dr. Belo Stone died in 1993. His bequest increased the fund, which benefits pre-medical students from South Texas.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR ARTS AND SCIENCE was established with several contributions including:

A gift in 1995 from Ann Dillon (B.A. 1933) in memory of her nephew, Lewis F. Lyne (B.A. 1943), Board of Trust member 1970 to 1982

Dr. Lee E. Preston (A&S, 1951)

A bequest from John David Raeber (B.A. 1981), who died in 1997

Robert C. and Adele R. Schiff Foundation and Dr. Robert C. Schiff, Jr. (B.S. 1977)

THE DICK H. AND DOROTHY N. 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 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 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 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.

School of Engineering Scholarships and Loan Funds

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 CORENSWET MEMORIAL SCHOLARSHIP was established in 1975 by Abe Corenswet (B.E. 1931) to honor members of his family. He died in 1994.

THE ENGINEERING SCHOOL STUDENT FINANCIAL AID ENDOWMENT was established with gifts from alumni and friends including:

A gift in 2003 from Doug and Penny Davis

THE F. J. LEWIS/J. R. HENDRICKSON LOAN FUND was established by alumni and friends of the late Fred J. Lewis, dean of the School of Engineering from 1933 to 1959, and the late Joe R. Hendrickson, professor of applied mechanics.

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

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 GEORGE AND PEGGY WEISE SPIEGEL SCHOLARSHIP was endowed in 2003 to provide need-based scholarship assistance to deserving students. This is the second scholarship endowed by George Spiegel (B.E. 1948) and his wife Peggy Weise Spiegel (B.A. 1948).

The scholarship will rotate on a four-year cycle between the School of Engineering and the College of Arts and Science.

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 Chemical Engineering department.

Peabody College Scholarships and Loan Funds

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 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 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 CHRISTINE EHRLING MEMORIAL STUDENT ASSISTANCE FUND was established as a loan fund by friends and family.

THE ALBERT J. AND MARGARET K. GASSER MEMORIAL SCHOLARSHIP was established in 1976 by Albert Gasser in honor of his late wife.

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 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 KURZ FAMILY SCHOLARSHIP was established initially in 2002 by Charles Kurz II of Haverford, Pennsylvania, and subsequently has been supported by other Kurz family members and the Kurz Foundation. Charles Kurz III graduated from Peabody College with honors in 2004. The scholarship provides financial assistance to deserving undergraduates in the Human and Organizational Development Program at Peabody College.

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 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 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 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 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 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 BONNIE L. TERWILLIGER TEACHING LOAN FUND was established in 1992 by Mr. and Mrs. J. Ronald Terwilliger to honor their daughter, Bonnie Leigh, a 1992 Peabody *magna cum laude* graduate. She received her M.Ed. in 1994 and began a career in teaching. One year of documented teaching service after graduation will forgive the loan amount received for one year of undergraduate study.

THE UNDERGRADUATE SCHOLARSHIP FUND FOR PEABODY COLLEGE was established with several contributions including:

A gift in 2000 from Virginia Perry Johnson to honor the late Virgie Wolfe for her benevolence in the Peabody College education of Virginia Perry Johnson (1949 graduate)

A gift from Martha Roberts Meyer (1933) in memory of her father, James A. Roberts (1903)

A gift in 2003 from Dr. Hans F. E. Wachtmeister (Ed.D. 1986) and Mrs. Anne Marie Wachtmeister

THE UNITED DAUGHTERS OF THE CONFEDERACY SCHOLARSHIP was established in 1927 by the Mary Mildred Sullivan Chapter of the UDC.

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 African Americans and Hispanic Americans in any major and to other 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



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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 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 has about 375 full-time professors who supplement their achievements in the classroom with significant research 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 Learning Center

The goal of the College Learning Center, located in the basement of Lupton Hall, is to help good students become better learners. It offers academic skills counseling, individual and small-group tutoring, and a mini-course on learning strategies. Most of the services of the center are offered to students in the College free of charge, including hours of tutoring in most freshman and sophomore courses.

Microcomputer Laboratories

The College of Arts and Science supports four computer facilities—two computer laboratories and three computer classrooms—that house a total of 146 systems. The facilities are conveniently located in the following buildings:

Garland Hall Lab—30-seat classroom and 24-seat walk-in lab with Windows systems

Branscomb Quadrangle Lab—32-seat walk-in lab with 16 Windows and 16 iMac systems

Stevenson Center Computer Classroom—30 Windows systems

Wilson Hall Computer Classroom—30 iMac and two Mac G4 systems

All of the College's computer labs and classrooms offer a wide variety of "courseware" and commercial "productivity software," including word processing packages. All of the systems are connected to laser printers and most of the systems have integrated 250Mb Zip drives as well as access to VUspace. Color printing and scanners are available in each center. In addition to accessing software on the local servers, students may also connect to both campus services and the Internet, including VUmail and online course materials. While walk-in use of the Microcomputer Laboratories

and Computer Classrooms is free, printing is charged at a rate of five cents a page for print jobs over ten pages.

The Garland and Branscomb computer labs are open seven days a week and are available for walk-in use for over ninety hours per week. The computer classrooms in 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 for use in the Sarratt Student Center. As a result, access to computers in the College is quite good. During the last academic year, the labs were full for a total of about ten hours, which is equal to only one day's operation.

At last count, more than 90 percent of Vanderbilt students own a personal computer. Since all students in the Residence Halls have a network connection, having your own system is convenient. (Please consult the ResNet guidelines for supported systems.) But most students will find that the Microcomputer Laboratories will provide all of the computing resources that are needed for success at Vanderbilt.

The Advising System

Entering freshmen are assigned faculty advisers, all regular members of the College faculty, chosen from the general area of the student's indicated interest. These first advisers are called "pre-major advisers" and counsel students during their first three and one-half semesters or until the students choose majors, when they are assigned advisers in their major department or program. Pre-major advisers are especially trained to help students move efficiently through the requirements of the College Program in Liberal Education. Because these advisers are chosen from the general area in which the student has expressed primary interest, they can help with choice of a major.

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 Programs in the College

1

Degrees Offered by the College

Currently, the College of Arts and Science offers two degrees, the Bachelor of Arts and the Bachelor of Science. Students in the two degree programs are subject to the same academic standards and to the same policies concerning honors, probation, academic discipline, and residence requirements.

At the time a major is declared, the student indicates the desired degree. A change from one plan to the other may be made at any time prior to the final semester of residence, but only one baccalaureate degree will be conferred.

Beginning with students entering in fall 2005, the Bachelor of Arts will be the only degree offered by the College of Arts and Science.

The Bachelor of Arts

The Bachelor of Arts degree is granted upon successful completion of the following five requirements:

1. at least 120 semester hours of creditable college work,
2. a final grade point average of at least 2.000,
3. completion of the College Program 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, or a minimum of 90 hours for those students with a second major outside the College.

The Bachelor of Science

The Bachelor of Science degree differs from the Bachelor of Arts degree in the extra flexibility it provides for including work offered outside the College of Arts and Science. Otherwise, the requirements for the two degrees are the same.

Students who entered Vanderbilt prior to fall 2005 are eligible to complete the Bachelor of Science under the old rules as follows:

The student must complete all of the requirements listed under the Bachelor of Arts, above, except for the minimum hours that must be completed "within the College."

Limitation on Hours outside the College

Candidates for the Bachelor of Arts degree must successfully complete a minimum of 102 hours within the College. Students who are completing an approved second major from one of the other schools within Vanderbilt

are only required to complete 90 hours within the College for the Bachelor of Arts degree.

Freshman Seminars

Freshman seminars offer students an intellectually stimulating introduction to the world of the scholar, with opportunity for scholarly study in a small-class setting under the leadership of a regular faculty member. These seminars are open only to freshmen and enroll no more than twenty students each, and many of them are limited to fifteen. But freshman seminars differ from other freshman classes not only in size but also in how students learn in them.

In seminars freshmen learn what kind of questions scholars in a discipline ask themselves and how they go about answering those questions. Indeed, freshmen in seminars are assigned problems to solve, and they learn to set problems for themselves. They are guided by a trained and active researcher to the materials they need to solve those problems. They gather relevant data, think about the implications of this information, and reach conclusions. Then they communicate their conclusions to other members of the seminar orally or in writing. Those conclusions become the subject of discussion by the instructor and other members of the seminar. That is, freshmen learn how to learn and how to communicate effectively what they have learned.

After completing one of these seminars, students approach all subsequent study in a more committed and more excited fashion, having discovered how much more they can learn by involving themselves in their own education. They have also laid the foundation for lifelong learning—a necessity in a world of rapidly changing technology, where many people pursue more than one career in a lifetime.

The Faculty of the College believes the seminar experience to be so important to later learning that freshmen are required to complete a freshman seminar successfully in order to qualify for sophomore standing (see Academic Discipline in the chapter on Academic Regulations). Freshmen will find seminars an exciting way of meeting certain requirements of the College Program in Liberal Education (see below), fulfilling hour requirements in a major, meeting prerequisites for 200-level courses, or just trying out a discipline to discover whether they have an interest in it.

Seminar offerings change each year. The booklet *Freshman Seminars*, available on request from the Office of the Dean, gives full descriptions of current seminar offerings and information on whether a particular freshman seminar can be used to fulfill requirements of the College Program or of a major in its field or can serve as prerequisite to advanced courses in its field.

College Program in Liberal Education

Students plan their early studies under the College Program in Liberal Education (CPLE). This program is designed to help students refine their skills and to bring them into contact with the variety of disciplines, subjects, and modes of thought essential to a liberally educated person.

The College Program sets requirements in *writing*, *mathematics*, and *foreign language* as well as in the following four areas:

History and Culture. 9 to 12 hours, including

American Component. 6 hours

International Component. 3 to 6 hours

Humanities. 9 hours

Natural Science. 11 hours, including

Basic Science. 8 hours

Science and the World. 3 hours

Social Science. 6 hours

2004/2005 CPLE Approved Courses

The courses and test scores presented below are those approved for 2004/2005 for the CPLE. Because the program will continue to be refined in the future, it is likely that new courses will be added, that some courses now listed will be deleted, and that achievement levels will change.

Students who in 2004/2005 complete listed CPLE courses satisfactorily or who matriculate with achievement scores at the indicated levels will be certified as having satisfied the 2004/2005 CPLE requirements, regardless of any changes that may be made in the future. In subsequent years, a student's courses and test scores will qualify only if they appear on the program description for that year.

Students must be careful each year to use a current program description as a guide to course selection under the CPLE. Copies are available from the Office of the Dean, College of Arts and Science. Although the College provides assistance through the advisory system, various publications, and consultations in the Office of the Dean and the Office of Records and Institutional Research, each student is responsible for selecting a program of courses that fulfills CPLE requirements.

Skills

Writing

Fluency in writing the English language is critical for success in college work and for effectiveness as an educated person in our society. (Indeed, it is so critical that the writing requirement is the only one in the CPLE that must be completed according to a schedule; see the last paragraph of this section on Writing.) Therefore all students, except those noted below, must first successfully complete English 100W and then complete two

other W courses (courses that meet the writing requirement are indicated with a "W" in this catalog and in the *Schedule of Courses*).

Students who score 560 or above on the College Board SAT II Writing Test are not required to take English 100W (indeed, it will not count toward their writing requirement, although they may take it as an elective) but must successfully complete two other W courses.

Students who score 760 or above on the College Board SAT II Writing Test or who score a four or a five on an Advanced Placement Examination in English (either English language and composition or English literature and composition) are obligated to take one W course (other than English 100W) at Vanderbilt. Transfer students who receive transfer credit for two or more W courses must, nevertheless, complete one W course (other than English 100W) at Vanderbilt. Both groups must successfully complete this W course by the end of the first academic year at Vanderbilt.

The writing courses for 2004/2005 are as follows:

African American Studies 115W

Anthropology 115W

Art and Art History 115W

Astronomy 115W

Classics 115W

Communication Studies 115W

Economics 115W

English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W

German 115W

History 115W

Honors 181W (open to College Scholars only)

Humanities 105W, 106W, 107W, 108W, 115W

Interdisciplinary Studies 115W

Music 115W

Philosophy 100W, 115W

Political Science 115W

Portuguese 115W

Psychology 115W

Religious Studies 110W, 115W

Russian 115W

Sociology 115W

Spanish 115W

Theatre 115W

Students required to take English 100W must complete that course and one additional writing course during the first year. Other students who are required to take writing courses must complete at least one during the first year, and all students must satisfy the full requirement before the end of the second year.

Mathematics

The methods of mathematics are important in the study of the natural and social sciences—and these methods are becoming increasingly useful in the humanities. As confirmation that they possess the necessary foundation in mathematics, all students are required either to have a College Board SAT II Mathematics Test score of at least 620 (Level I) or 570 (Level II) or to complete one of the following alternatives:

1. Mathematics 127a–127b, or
2. Mathematics 140, or
3. Mathematics 155a, or
4. Mathematics 150a and Mathematics 180, or
5. A course sequence involving mathematics listed under the options in Mathematical Reasoning/Foreign Language below.

Foreign Language

A basic capability in foreign language represents a beginning that can eventually lead to direct acquaintance with other literatures and cultures. It can also improve one's use of English. To demonstrate this beginning competence, all students are required to present a satisfactory score on an Achievement Test or SAT II Test in foreign language or to complete a first-year course sequence or a higher-level course in foreign language at Vanderbilt. Students who have at least the following scores on College Board SAT II Subject Tests will have satisfied the first-year language requirement: French, 540; German, 470; Hebrew, 530; Italian, 540; Japanese (with listening), 440; Latin, 530; Spanish, 520. The Foreign Language requirement may be fulfilled by completing satisfactorily one of the following courses or a higher numbered course: Arabic 210b, Chinese 202, French 101b, German 102, Greek 202, Hebrew 111b, Italian 101b, Japanese 202, Latin 100, Latin 102, Portuguese 102, Russian 102, Spanish 102.

Further Study in Mathematical Reasoning or Foreign Language

All students should develop their abilities in abstract reasoning, symbolic manipulation, ordering, memory-work, and other types of analysis involving the expression of ideas in a way other than through the English language. Students therefore are required to complete at least one of the following two options:

1. Further Study in Mathematical Reasoning
 - a. Mathematics 150a–150b, or
 - b. Mathematics 155a–155b, or
 - c. Mathematics 140 plus Economics 150, or Mathematics 180, or Philosophy 202.
 - d. Mathematics 155a plus Economics 150, or Mathematics 180, or Philosophy 202.

2. Further Study in Foreign Language

One of the third-semester or higher-level courses in a foreign language or a College Board SAT II Test score at or above the levels indicated: French, 590; German, 600; Hebrew, 570; Italian, 600; Japanese (with listening), 490; Latin, 630; Spanish, 630. Third-semester foreign language courses are as follows: Arabic 220a, Chinese 202, French 103, German 103, Greek 203, Hebrew 113a, Italian 103, Japanese 202, Latin 103, Portuguese 200, Russian 203, Spanish 104.

It is expected that a well-rounded student will elect to fulfill both of these options, for they are valuable in their own right as well as preparatory for advanced work in many fields. Students who want to be considered for membership in Phi Beta Kappa should also fulfill both options.

Areas of Study

Students must satisfy the requirements in all four areas described below. In designing their programs, students should be aware of the following restrictions: (a) no area requirement may be fulfilled by courses taken solely within one department; (b) no more than one course that satisfies the writing requirement may be offered in satisfaction of any area requirement; (c) courses listed in more than one area may be used to satisfy only one area requirement.

History and Culture (9 to 12 hours)

Students will study the history and culture of their own and other societies. Certain course work in the humanities, social science, and natural science can contribute to such historical and cultural understanding. The requirements in History and Culture, however, demand a sustained consideration of the American national experience and a grasp of the thoughts, language, or experiences that have contributed to the formation of at least one other cultural or national tradition.

This requirement must be completed with courses from two or more departments. Credit for courses in a single department will not satisfy the requirement. Crosslisted courses may not be used to defeat this rule.

History and Culture: American Component (6 hours).

The American Component offers insights into the nature and development of distinctive aspects of the American experience. Courses that satisfy this requirement deal with important themes in the American experience, provide a historical perspective, and cover a substantial period of time.

Approved courses for 2004/2005 are as follows:

American and Southern Studies 100
Art and Art History 240, 241
Classical Studies 222
Communication Studies 220, 221
Economics 226, 245

English 212, 217, 263, 266

History 115W(50), 115W(51), 170, 171, 268, 269, 270, 271, 279, 280, 282, 283, 284, 285, 286, 287, 288, 290, 291

Music (MUSL) 147, 261

Political Science 100

Religious Studies 122

Sociology 217, 249, 251, 269

Theatre 204

History and Culture: International Component (3 to 6 hours).

The International Component expands cultural horizons by providing insight into the distinctive features and patterns of a major culture or cultural tradition, either contemporary or historical. Courses satisfying this requirement also provide perspective on American society by showing it against the background of a different age or culture.

Language is both a part of culture and a vehicle affording further insight into other cultures. The College Program requires a minimum level of competence in a foreign language, and offers incentives to continue language study to the intermediate level and beyond. The student will choose one of three options:

1. Completion of the intermediate level (or higher) in a foreign language and an additional approved course in the foreign language or a course taught in English dealing with the history or culture of that area or civilization.

2. One semester of full-time study in one of the overseas programs listed below.

3. Two broadly conceived survey courses taught in English and dealing with a single major cultural area or tradition significantly different from that of the United States. Approved courses are listed below.

International Component Option 1. Completion of the intermediate level in a foreign language and one additional course in the literature, culture, or history of that area or civilization. For 2004/2005 a choice may be made among eleven foreign languages, as follows:

<i>Language</i>	<i>Intermediate Level</i>	<i>Additional Course</i>
Chinese	202	Art and Art History 252; Chinese 241, 242; History 154, 155, 248; Political Science 216
French	103	French 207, 208, 215; History 234, 235, 236
German	104	German 221, 222; History 231
Greek	204 or 240	Art and Art History 204, 205; Greek 212; Classics 130, 204, 205, 208, 209; History 208, 209
Hebrew	113b	Religious Studies 112
Italian	201	History 232; Italian 230
Japanese	202	Art and Art History 253, 254; History 249; Political Science 214; Religious Studies 246, 247
Latin	104	Art and Art History 206; Latin 201, 202, 205, 206, 220; Classics 146, 206, 212, 213; History 210, 211
Portuguese	200	Portuguese 221, 222; History 264
Russian	204	History 237, 238; Political Science 212, 235; Sociology 273
Spanish	104	Spanish 203, 221, 223; History 258, 259

International Component Option 2. Full-time study in the fall or spring semester at one of the following programs: Classical Studies in Rome, Vanderbilt in France, Vanderbilt in Germany, Vanderbilt in Spain, or one of the Vanderbilt Programs in Argentina, Australia, Brazil, Chile, China, the Dominican Republic, England, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Northern Ireland, Russia, Scotland, and Taiwan. Also full-time summer programs in Humanities in London, International Studies in London, Vanderbilt in France, Vanderbilt in Berlin, and Vanderbilt in Spain.

International Component Option 3. Two courses taught in English that survey the traditions and cultural achievements of one of the following six areas. Both courses must be taken in the same area.

Approved courses for 2004/2005 are as follows:

Africa: Two courses from History 254, Music (MUSL) 171, Political Science 219, or Sociology 275

Classical Civilization: Two courses from Classics 130, 146, 208, 209, 210, 212, or 213, or Philosophy 210, except that 130 cannot be paired with 208 or 209

Early Civilization: Anthropology 103, 104, 245; Art and Art History 245

East Asia: Two courses from History 157; Music (MUSL) 170; Religious Studies 130

European History and Civilization: Two courses from History 100 or 115W (Ideas and Culture of Western Civilization to 1700), 101 or 115W (Ideas and Culture of Western Civilization since 1700); European Studies 201

Latin America: Two courses from Anthropology 210; Art and Art History 234; History 160, 161; Latin American Studies 201, 234; Music (MUSL) 250; Political Science 217; Sociology 277; Spanish/Portuguese 293

Middle Ages: Two courses from History 212, 213; Philosophy 211

Humanities (9 hours)

Courses in the humanities seek to improve the student's understanding of the traditions of human thought and art, of the relationships among the various subjects in the humanities, and of the importance of humanistic concerns to the daily lives of all thoughtful persons. Nine hours of course work chosen from the approved list meet this requirement. Courses must be completed in more than one department. Crosslisted courses may not be used to defeat this rule.

Approved courses for 2004/2005 are as follows:

Anthropology 130

Art and Art History 110–111, 130, 204, 205, 206

Classics 115W (The Good Life), 115W (Music and Society: Views from Greece and Rome), 115W (The Intellectual Crisis of Athens), 115W (Women in Classical Literature), 130, 146, 150, 175, 204, 205, 206, 210

Communication Studies 210, 222

Comparative Literature 215, 237, 285, 286, 287

English 104W, 105W, 106W, 109W, 112W, 118W, 214a–214b, 215, 253, 257, 285

French 220

German 115W (Pioneers in Literary Modernism: Brecht, Kafka, and Rilke), 221–222

Greek 216

History 180

Honors 181, 181W (open to College Scholars only)

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 293

Interdisciplinary Studies 201

Music (MUSL) 115W (Music and Modernism), 115W (Shakespeare and Music), 140, 141, 160, 183, 200

Philosophy 100, 100W, 105, 115W (Concepts of God), 210, 211, 261, 262

Political Science 103

Portuguese 293

Religious Studies 106, 107, 108, 109, 110W, 112, 113, 114, 125, 130, 131, 132, 140, 205

Russian 171–172, 221–222

Spanish 203, 293

Theatre 100, 115W (Treasure or Trash), 201–202, 203

Women's Studies 150

Natural Science (11 hours)

The natural sciences study entities, processes, and relations in the natural world. Courses in this area seek to improve the student's understanding of the basic principles that order natural phenomena, of the way these principles apply to various fields of knowledge and to technical developments, and of science itself as a way of examining and viewing the

world. This requirement must be completed in more than one department (Physics and Astronomy are here considered to be different departments).

Natural Science: Basic Science Component (8 hours).

The goal of the Basic Science requirement is to give students sufficient foundation in science to enable them to (a) grasp some of the fundamental principles that order natural phenomena; (b) appreciate the scope, accuracy, and quantitative precision of scientific theories; and (c) understand the parts played by observation and experiment, deduction, imagination, accident, and influences from the larger society in the development of scientific theories.

Two 4-hour courses including laboratory or three lecture courses meet this requirement.

Approved courses for 2004/2005 are as follows:

Astronomy 102, 115 (Galaxies and Cosmologies), 115 (Birth, Life, and Death of Stars)

Biological Sciences 100, 110a–110b, 111a–111b, 218

Chemistry 101a–101b, 102a and 104a, 102b and 104b

Geology 101, 102, 103, 104, 111, 113

Honors 185 (open to College Scholars only)

Physics 105, 106, 110a–110b, 111a–111b, 116a–116b, 117a–117b, 121a–121b

Natural Science: Science and Society Component (3 hours).

The objective of this requirement is to introduce students to scientific or technical knowledge and to relate that knowledge to the broader context of the world. Courses meeting this requirement are devoted to both (a) helping students comprehend how scientific knowledge advances and is cumulative, how new theories refute or supersede old ones, what scientific research can and cannot do; and (b) examining the effects of scientific knowledge and technology on human beings by showing the importance of science in our culture and exploring the historical effects of scientific theories and discoveries. Any course from the following approved list for 2004/2005 meets this requirement.

Astronomy 115 (Planetary Systems and the Search for Life in the Universe), 115W (Nature of Discovery), 130, 203

Biological Sciences 105, 115 (Biotechnology and the New GenEthics; Biological Clocks and Human Behavior; or Conservation Ecology), 249, 273

Geology 100, 115 (Controversies in the Geosciences or The Meaning of Fossils and the Age of the Earth), 108, 150, 201, 205

German 238, 241

History 202, 204

Honors 182 (open to College Scholars only)

Philosophy 244, 245

Physics 101, 115 (Atomic and Nuclear Physics), 115W (Lasers), 238
Religious Studies 202, 203, 241, 245
Sociology 115 (Environment and Society)

Social Science (6 hours)

The social sciences seek to understand human beings and their relation to the diverse structures and institutions of their social environment. The social sciences study subjects ranging from the individual to the primary group (such as the family), through more complex groups (religious, social, economic, and other institutional forms), to the political affiliations of modern states and the framework of an international order. Six hours of course work chosen from the approved list, and in more than one department, meet this requirement. Crosslisted courses may not be used to defeat this rule.

Approved courses for 2004/2005 are as follows:

Anthropology 101, 102, 103, 104
Economics 100
Honors 183 (open to College Scholars only)
Political Science 100, 101, 102, 150
Psychology 101, 115 (General Psychology—not 115a)
Sociology 101, 102, 103, 237

The College Program, the Major, and the Optional Minor

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

Advanced Placement and Transfer Credit

In general, only courses taken in the College may be used to satisfy requirements of the College Program; but credit awarded to students through Advanced Placement Examinations, approved international examinations such as the International Baccalaureate, credit by examination, or transfer credit earned before admission to Vanderbilt may be used toward the satisfaction of these requirements.

Vanderbilt Study Abroad Programs

Courses offered by the Vanderbilt study abroad programs that are equivalent to College Program courses offered in Nashville may be used to satisfy the same College Program requirement as the equivalent College Program course. This provision also applies to courses offered by those programs sponsored by the Council on International Educational Exchange (CIEE), CET, and IFSA Butler in which Vanderbilt participates. For a full listing of these programs, see the chapter Additional Programs.

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 36 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.

A grade point average of at least 2.000 is required in all courses counted toward the major. Each department determines whether courses numbered below 200 count as part of a major and may require courses for the major that will not count toward the major GPA. Departments may require work in related courses to be designated as part of the student's program of concentration.

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 are varied and broad in scope, with majors offered in the following fields:

Ancient Mediterranean Studies	Ecology, Evolution, and Organismal Biology	Political Science
Anthropology	Economics	Psychology
Art	English	Religious Studies
Art History	French	Russian
Biological Sciences	German	Sociology
Chemistry	History	Spanish
Classical Languages	Mathematics	Theatre
Classics	Molecular and Cellular Biology	Women's Studies
Communication Studies	Philosophy	
Earth and Environmental Sciences	Physics	

Approved Majors Outside the College

Students may combine one of the majors listed above with a second major taken within or outside the College. For additional information on one of the following programs which Arts and Science students are eligible to declare as second majors, see the departmental listings in the Blair, Engineering, and Peabody sections of this catalog.

Through Blair

Music

Music History

Music Performance

Through Engineering

Computer Science

Through Peabody

Child Development

Cognitive Studies

Declaration of the Area of Concentration

Students may formally declare a major at any time during the third or fourth semester of residence. The student selects a department and applies to that department for assignment to an adviser. Students wanting to develop an interdisciplinary program apply to the dean.

A major must be declared no later than the fourth semester. Each spring 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 with an interdisciplinary adviser approved by the dean, and with the Office of Records and Institutional Research. When the student's major has been registered, the student's file is transferred from the pre-major adviser to the new major adviser.

Interdisciplinary Programs of Concentration

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 the dean.

The student's contract for an interdisciplinary major is deemed to be a statement of required courses within a major discipline. Furthermore, because of the nature of interdisciplinary majors, all courses listed in this

catalog as options within an interdisciplinary area and 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 work taken in these categories.

This plan also permits students to major in one of the defined interdisciplinary programs listed below. There shall not be fewer than 36 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 Studies
- American and Southern Studies
- Communication of Science and Technology
- East Asian Studies
- Economics and History
- English and History
- European Studies
- Film Studies
- French and European Studies
- Jewish Studies
- Latin American and Iberian Studies
- Medicine, Health, and Society
- Neuroscience
- Public Policy Studies
- Russian Studies
- Russian and European Studies
- Spanish and European Studies
- Spanish, Portuguese, and European 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.

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.

Additional Programs

1

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. 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 three 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.

Changes to the minor may not be made after students begin the second semester of their senior year.

Optional minors are offered in the following fields:

African American Studies	European Studies	Philosophy
Architectural History	Film Studies	Physics
Art History	Financial Economics	Political Science
Astronomy	French	Portuguese
Biological Sciences	German	Psychology
Chemistry	History	Religious Studies
Classical Studies	Italian	Russian
Communication of Science and Technology	Italian Studies	Russian Studies
Communication Studies	Japanese Language and Culture	Russian and European Studies
Comparative Literature	Jewish Studies	Sociology
Earth and Environmental Sciences	Latin American Studies	Spanish
East Asian Studies	Managerial Studies: Corporate Strategy	Studio Art
Economics	Information Systems	Theatre
English	Leadership and Organization	Women's Studies
Environmental Science	Mathematics	
Environmental Studies	Neuroscience	

Approved Minors Outside the College

Through Blair

Music
Music History
Music Performance

Through Engineering

Computer Science

Through Peabody

Child Development
Cognitive Studies
Special Education

Senior Scholar Program

Under the Senior Scholar program, students may spend the entire senior year pursuing projects of their own devising. A project shall result in a finished document that constitutes material evidence that the time has been profitably spent in terms of intellectual development. Senior Scholars have presented a broad variety of projects, including documentary films, novels, and research monographs. Scholars work under the supervision of one or more faculty members, and the project is graded Distinguished, Pass, or Fail. Admission into the Senior Scholar program will normally waive major requirements for the degree. The program is directed by the Committee on Individual Programs. Juniors wanting to apply for this option may obtain further details from the Office of the Dean.

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 research by undergraduates in all fields may be subsidized by the University.

Exchange Program with Howard University

Through an agreement with Howard University in Washington, D.C., a limited number of undergraduates in the College 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 in the first paragraph under Study Abroad. For more information, contact the Office of the Dean, College of Arts and Science, 311 Kirkland Hall.

Study Abroad

Through Vanderbilt study abroad programs with our own resident directors and through additional programs provided by agreements with other universities and agencies, Vanderbilt students can take direct credit courses of study abroad in Argentina, Australia, Brazil, Chile, China, Dominican Republic, England, France, Germany, Ireland, Israel, Italy, Japan, Mexico, New Zealand, Russia, Scotland, Spain, and Taiwan.

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 and a grade point average at this level in each of the two most recent semesters. Most programs require a higher grade point average and, with the exception of Vanderbilt's programs in France and Spain, the student's application must also be approved by the host university, institute, or consortium. Study abroad programs that are either controlled by or approved by Vanderbilt offer direct credit toward the Vanderbilt degree. Hours earned in them are treated as if earned on the Nashville campus and serve to satisfy the residence requirement (see the chapter on Academic Regulations). Other study abroad programs may be approved for transfer credit by the dean. Information is available from the Study Abroad Office, 008 Furman Hall, and at www.vanderbilt.edu/studyabroad.

Vanderbilt Programs

The three oldest Vanderbilt study abroad programs are at Aix-en-Provence in France, Regensburg in Germany, and Madrid in Spain.

The Vanderbilt in France, Vanderbilt in Germany, and Vanderbilt in Spain programs give undergraduates an 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 either the academic year, the fall or spring semester, or the summer. The program in Germany is offered in partnership with Wesleyan University and is primarily for the spring semester, but arrangements can be made for students wishing to study for the academic year.

The new exchange program at the Universidad de las Americas (UDLA) in Puebla, Mexico, offers students an opportunity for study at a private partner university. At UDLA students can learn more about the culture and society of Mexico and with sufficient language proficiency can take regular classes at the university with their Mexican counterparts. Participation in the program can be for the entire academic year, fall or spring semesters. During the summer an intensive program in Spanish language and Mexican culture and society is offered at UDLA for students at all levels of language proficiency, beginning to advanced.

In addition, programs are offered at the CET Centers in Florence and Siena, in Jerusalem at the Hebrew University, in Palma de Mallorca at the University of the Balearic Islands, and in Rome 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 Art and Art History. More information is available about this program in the Department of Classical Studies, 329 Furman Hall.

Vanderbilt Summer Programs

While summer study abroad opportunities are available through many Vanderbilt programs, two programs of special long-standing are directed by Vanderbilt faculty. These are Humanities in London and International Studies in London, both offered each summer and held in the facilities of the University of London. The Humanities in London program emphasizes the literature, history, and art of Great Britain. The International Studies in London program emphasizes the social, economic, business, and political aspects of contemporary international problems. Additional summer study is provided in Bilbao, Spain, at the University of Deusto.

Some additional summer study abroad opportunities are offered in cooperation with the agencies listed below.

Vanderbilt-Approved Programs

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

The Council on International Educational Exchange (CIEE) offers Vanderbilt-approved programs in China at Peking University in Beijing, at Nanjing University in Nanjing, and East China Normal University in Shanghai; in Taipei, Taiwan, at the National Chengchi University; and in

Japan at Sophia University in Tokyo. In Latin America, programs are available in Buenos Aires, Argentina, at the Facultad Latinoamericana de Ciencias Sociales and the Universidad de Buenos Aires; in Brazil, at the Pontifícia Universidade Católica (PUC) de São Paulo; in Chile at the Universidad de Chile and the Pontifícia Universidad Católica de Chile in Santiago and at Universidad Católica de Valparaíso; and in the Dominican Republic at the Pontifícia Universidad Católica Madre y Maestra in Santiago. Students may also attend, through CIEE, Murdoch University in Perth, Australia, and St. Petersburg State University in St. Petersburg, Russia. For more information about all CIEE programs, see their Web site at www.ciee.org.

CET sponsors Vanderbilt-approved programs at three Chinese universities: the Beijing Institute of Education and the Harbin Institute of Technology, and, for summer only, at the Johns Hopkins-Nanjing Center for Chinese and American Studies at Nanjing University. Study is also available in Florence and Siena, Italy. For more information about all CET opportunities, see their Web site at www.cetacademicprograms.com.

Through the Butler Institute for Study Abroad (IFSA), qualified students can study in Australia, Ireland, New Zealand, Northern Ireland, and Scotland. In Australia, students may study at the University of Adelaide (Adelaide), Australian National University (Canberra), the University of Melbourne (Melbourne), Monash University (Melbourne), New South Wales University (Sydney), the University of Queensland (Brisbane), the University of Sydney (Sydney), and the University of Western Australia (Perth). In Ireland, students may study at Trinity College (Dublin), National University of Ireland-Galway (Galway), University College Cork, the National University of Ireland-Dublin (Dublin), and in Northern Ireland at Queens University (Belfast). In New Zealand, study is available at the University of Auckland, the University of Canterbury (Christchurch, South Island), or Victoria University (Kelburn, Wellington, North Island). And in Scotland, study is available at the University of Edinburgh, the University of St. Andrews, The University of Stirling, and the University of Glasgow. For more information, see the IFSA-Butler Web site at www.ifsa-butler.org.

Additional Options

Students interested in receiving transfer credit for overseas 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 overseas 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 Thomas N. Oeltmann, Associate Professor of Medicine and Biochemistry, 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 College Program requirements, and elective options. Students may choose majors from the humanities, mathematics, the laboratory sciences, or the social sciences, 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 may choose either of the following options:

1. A student may qualify for admission with either a B.A. or B.S. degree, whether completed in three years or in four. Minimum requirements for admission generally would be met by completing one year of English; Biological Sciences 110a–110b and 111a–111b; Chemistry 102a–102b and 220a–220b; and Physics 116a–116b, 117a–117b, or 121a–121b (see the Medical Center catalog for the official statement).

2. A student may qualify as a three-year student in the senior-in-absentia program (see the chapter on Academic Regulations).

Any student contemplating application to medical school should take at least a year of English, two years of chemistry including organic, a year and a half of biology, one year of physics, general psychology, and at least one semester of calculus. These courses, together with the College Program requirements, meet the admission requirements of most medical schools.

Early Acceptance to the Vanderbilt University School of Medicine

A limited number of Vanderbilt undergraduates may apply for and be accepted into the Vanderbilt University School of Medicine at the end of the sophomore year.

Dentistry

Students interested in pre-dental studies should plan their undergraduate program in consultation with Thomas N. Oeltmann, Associate Professor of Medicine and Biochemistry, health professions adviser. There is no formal pre-dental program of courses at Vanderbilt. Pre-dental studies should include courses necessary to meet dental school admission requirements, all courses required for the major, all College Program requirements, and elective options. Students may choose majors from the

humanities, mathematics, natural science, or the social sciences. 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) or apply for admission after three years of college work without a degree.

Interested students are urged to consult the directory, *Admission Requirements of U.S. and Canadian Dental Schools*, published by the American Association of Dental Schools, as a guide to planning their undergraduate programs.

Any student contemplating application to dental school should take at least a year of English, two years of chemistry including organic, a year and a half of biology, one year of physics, general psychology, and at least one semester of calculus. These courses, together with the College Program requirements, meet admission requirements of most 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.

Hearing and Speech Sciences

The Division of Hearing and Speech Sciences at Vanderbilt offers a core of undergraduate courses suggested as preparation for graduate work in the field: Hearing and Speech Sciences 205, 206, and 217. These courses provide an introduction to human communication and its disorders that may be of interest to liberal arts majors. Further information is available in the Graduate School catalog and from Professor Russell J. Love at the Bill Wilkerson Hearing and Speech Center.

Architecture

Undergraduate students in the College 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 and Art History.

Engineering

Undergraduate students in the College 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 *B* 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 Associate Professor Kassian A. Kovalcheck Jr., prelaw adviser.

Management

Joint Five-Year Baccalaureate–M.B.A. Program. By combining one and one-half years of study in the Owen School 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 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.

Students must apply to the Owen School for admission to the five-year program during their junior year. 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 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. Prior to their enrollment in the joint program, the Owen School will advise students of the level of financial support, if any, to be provided during the eighth and subsequent semesters. This ensures that an eighth semester scholarship from the College 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.



Honors

1

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:

Students who earn grade point averages of 3.250 or higher will graduate *cum laude*; 3.500 or better, *magna cum laude*; 3.750 or better, *summa cum laude*.

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 High Honors in their major field, and this designation appears on their diploma.

College Scholars Program

Entering freshmen with outstanding academic records and freshmen 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 College Program 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.

The College Scholars Center, available to all students in the program (at any time), includes a seminar room where many of the honors classes meet, study space, microcomputers, a small kitchen, and a collection of

reference books. It provides space for study, special lectures, and informal exchanges among College Scholars.

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 the Office of the Dean.

Departmental Honors

To encourage individual development and independent study in a special field of interest, many departments of the College 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 High 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, not receive a grade of *F*, and not have any temporary or missing grades.

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 grade point average of 3.600 or better are eligible for consideration, as are juniors with a grade point average of 3.850 who have completed at least 70 semester hours at Vanderbilt.

Attainment of the minimum average is not a guarantee of election. Membership is based on broad cultural interests and scholarly achievements. The following guidelines normally apply: at least 90 hours of the student's total program must be liberal, rather than applied or professional, in nature; and the breadth of a candidate's program, as shown by the number and variety of courses taken outside the major, is considered. Grades earned in applied or professional work are not counted in computing the grade point average. Candidates are expected to have satisfied both of the upper-level options in Mathematical Reasoning/Foreign Language of the College Program in Liberal Education. These mathematics and language courses cannot be taken on a P/F basis.

To be considered for election in the junior year, students should have completed all of the CPLE requirements by the end of the junior year, including both of the upper-level options in mathematical reasoning/foreign language. Students who go abroad on foreign study programs in their junior year are not eligible for election as juniors, but are considered in due course during their senior year.

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.

Honor Societies for Freshmen

Freshmen 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.

EVERY 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 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

1

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 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 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 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 outside employment or illness. During the summer session, there is no minimum course load. Summer loads exceeding 14 hours must be authorized by the dean.

Auditing

Regularly enrolled Arts and Science students who want to audit courses in any of the undergraduate schools of the University must obtain the oral consent of the instructor to attend the class but do not register for the course. No record is kept of the audit. Regular students may audit classes each semester free of charge.

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 some courses in which they can receive the grade *P* (Pass). This grade is entered for a student enrolled under the P/F option who is awarded the grade *D-* or higher. The record of a student enrolled under this option who fails the course will show an *F*.

To be eligible for the P/F option, the student must have been admitted to sophomore, junior, or senior standing and must not be on academic probation. No student may offer toward the degree more than 18 hours graded *P*. No more than one course per term may be taken on a P/F basis. The P/F option does not apply to courses in the following categories:

1. Courses counted toward College Program requirements;
2. For students with a single or double or triple major, courses in the major field(s) or other courses that may be counted toward 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 minor or those counting toward an interdisciplinary minor;
5. Courses taken previously, whether for a regular grade *A* through *F* or under the P/F option;
6. Courses that have been specifically excluded from the P/F option. Such courses are designated in the *Schedule of Courses*.

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. A small number of courses are offered in which only the grades P/F are possible. These courses cannot be converted to a regularly graded basis.

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.

The limit of 18 hours on grades of *P* applies to all credit of this type, including any received in another school of the University, in an affiliated institution, or by transfer. Candidates for teacher licensure should be aware that part of the Teacher Education program is offered only with the grade *P* or *F*. These candidates should, therefore, plan their programs so that the total hours of *P*, including student teaching, will not exceed 18.

The grade *P* is not counted in the grade point average nor used in the determination of honors. The grade of *F* earned under the P/F option is included in the calculation of grade point average just as it would be when earned on a regularly graded basis.

All P/F students are expected to meet normal course requirements (e.g., reports, papers, examinations, laboratory attendance) and are graded in the 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 above is converted in the Student Records System to a *P*, while other grades remain 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 on a P/F basis through OASIS within the change period of registration during the first week of classes (see Registration).

After this, they may change from a P/F basis to a regularly graded basis—but not vice versa—until the end of the eighth week of classes. These deadlines are published in the calendar. When a student wants to complete a major or a minor in a field in which the grade *P* has been received, the Office of Records and Institutional Research converts this grade to the regular grade originally earned.

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 *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.
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 office. The interested student must use this form to obtain the written approval of the following:
 - a) their academic adviser,
 - b) the instructor of the course,
 - c) and the Graduate School.

Reserving Credit for Graduate School

1. Arts & Science students who are interested in reserving the credit earned in a graduate course should consult with the Office of 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. The student 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 for students in their junior and senior years. Juniors or seniors wanting 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. 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.

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 Office of Records and Institutional Research should be consulted as to the status of similar but differently numbered courses.

Courses taken in the College may not be repeated elsewhere for grade replacement; nor may courses taken elsewhere be repeated in the College for grade replacement.

When registering for a course previously completed, a student should indicate that the course is being repeated. On OASIS the student should respond correctly when asked whether the course is being repeated. Failure to do so could result in an incorrect record, a subsequent adjustment of credit, and a delay in the student's graduation.

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

Students register for courses using a program installed on the University's central academic computer. Students who learn and follow the procedure outlined below will find that the system is quick and convenient. Those having a microcomputer with a modem or a network link that allows them to connect to the central computer can register from their dormitory rooms; others may register by using the computers in the Microcomputer Laboratories or the terminals in the Computer Center.

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. College Program requirements;
2. Major requirements;
3. Requirements of any optional minor(s) sought;
4. Course prerequisites;
5. Professional hour limit, if the student is a candidate for the B.A. degree (see Limitation on Professional Hours).

Course Request Period

Registration material is mailed to continuing students at their school address on a date in the preceding semester announced in the official Vanderbilt University Calendar, in a simplified calendar issued by the Office of Records and Institutional Research, and in the student newspaper, the *Hustler*. During a period of about three weeks, these students register for courses, sections, and meeting times through OASIS, the computer-assisted registration system that controls all undergraduate courses. By a specified date, students must have registered for a full load of courses (minimum of 12 hours). Continuing students are able to make changes in their schedules without charge after this deadline.

New students are also given the opportunity to register during the course request period. In the summer, freshmen attending summer orientation in June see advisers and then register for fall courses using OASIS. Freshmen not attending summer orientation or entering for the spring semester are sent registration material by mail and may send their course choices by mail to the Office of Records and Institutional Research or give their choices to a faculty adviser by telephone. Re-admitted students can access OASIS on the University network through a modem or send their course requests to the Office of Records and Institutional Research.

Because registration during the course request period is of great value to students in obtaining desired courses and sections and to department chairs in planning class sizes and adjusting number of sections to student demand, students are urged to register at that time. Those who do not may lose valuable time and will find their choice of courses limited.

At the end of the course request period no further registration activity is permitted for a period in which deans and department chairs analyze enrollment data and make adjustments in course and section offerings as needed. Every effort is made to enroll students in the courses and sections requested, but the Office of Records and Institutional Research reserves the right to move students from overenrolled sections or to “bump” them from over-enrolled courses.

Registration Period

This period begins with postal notification to students concerning the status of their registration. During registration period students may access OASIS any number of times to make changes in their registration or to register late. Courses and sections are available on a first come, first served basis depending upon seat availability. Students “bumped” from an over-enrolled course have first access to the system during this period, then non-registered students, then all other students.

Before classes begin, all registered undergraduate students must confirm enrollment for the semester by clearing their student account of all charges associated with the beginning of the semester. Tuition, fees, and all other charges for undergraduates are due by specific dates before the beginning of the semester. These dates are specified in the University Calendar and the *Undergraduate Catalog* (under “Financial Information” in the

front matter) and on the billing statement for the coming semester. The registration of students who miss the payment deadline will be cancelled unless they have made payment arrangements with the Office of Student Accounts.

Registration period ends at 4:00 p.m. on the day before the first day of classes.

Change Period

Beginning on the second day of classes and extending through the sixth day of classes students may use OASIS to fine-tune their registrations and may declare P/F status in a course. The sixth day of classes is the deadline for students to add a course, change a course, change sections in a course, drop a course without its appearing on their transcripts, or declare P/F status in a course.

Waiting lists are available for most closed courses through the fifth day of classes. At 4:00 p.m. on that day waiting lists are cancelled. Students unable to secure a seat in a closed course make changes on the sixth day of classes on a first come, first served basis depending upon the availability of seats.

Any change not handled by OASIS (e.g., courses in the Owen School or Nursing) must be made by the student using a Change of Course card. The student must file this card with the Office of Records and Institutional Research by the end of the change period for the change to be official.

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 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 Office of Records and Institutional Research. 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 the 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 possible.

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 the 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 sent to students, their faculty advisers, and (for students who are dependents of their parents or have authorized such reports) their parents. 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 Reexamination

Candidates for graduation who fail not more than one course in the final semester of the senior year are allowed one reexamination, provided the course failed prevents the student's graduation and provided the student could secure a passing grade in the course by passing the reexamination. The reexamination for removal of the grade *F* is given immediately after the close of the last semester of the student's senior year, but not until all grades for the senior year have been received by the Office of Records and Institutional Research.

Students taking a senior reexamination receive either *D-* or *F* in 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 Office of Records and Institutional Research 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, 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.

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

Grade reports are sent to students at established addresses as soon as possible after the conclusion of each semester. (Copies of these reports are sent to the parents of students who are dependents of their parents or have authorized such reports.) A report is also sent to each student at the beginning of the senior year, showing total hours, quality points earned, grade point average, and degree requirements still to be met. Students should examine these reports carefully and discuss them with their faculty advisers. Any errors should be reported immediately to the Office of Records and Institutional Research (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
- E: condition, with permission to retake final examination

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.

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. In the event that an excuse is not presented to the dean before the first day of the makeup examination period in the next semester, the grade in the course becomes an *F*. This action is taken regardless of whether the student is in residence the following semester.

A student who secures authorization for an absence at the proper time is obliged to take a makeup examination during the first full week 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. Otherwise, the grade *M* becomes an *F* by default. Any student who has sufficient reason for retaining the *M* grade for longer than the period allotted or for taking the

makeup examination at a special time may petition the Administrative Committee for permission. The grade *M* is counted as an *F* in calculating the grade point average until it is replaced with a permanent grade.

I: Incomplete

Essays, book reviews, laboratory reports, etc. must be submitted no later than the last regular class meeting of the semester or at an earlier date if so specified by an instructor in a particular course. Students are required to make up quizzes or examinations missed during the semester with an authorized excuse by no later than the last class day of the semester (not the date of the final examination). The grade of any student not complying with this schedule is computed on the basis of the grade zero for the missing work, unless an extension is granted by the dean upon petition by the student, with the endorsement of the instructor. These petitions must be presented on a day prior to the date on which the work is due.

Students for whom extensions have been authorized receive the temporary grade *I* (incomplete), which is removed at the end of the extension period. If the missing work is not completed at this time, it is computed as zero and a final grade is assigned. 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. The grade *I* is counted as an *F* in calculating the grade point average until it is replaced with a permanent grade.

E: Condition

An instructor may give the grade *E* (condition) in a course when in the instructor's judgment (a) the work represents a borderline case and additional evidence is necessary to determine whether the student should be given the grade *D-* or *F* or (b) the results of the final examination are such that they reduce the student's average in a course from passing to slightly below passing. But if the examination grade reduces the student's average to considerably below passing, the student will receive the grade *F*. The grade *E* must be removed during the regular makeup examination period of the student's next semester in residence or it becomes an *F* by default. A student who takes a reexamination to remove an *E* will receive the final grade *D-* or *F* in the course, depending on whether the grade on the second examination is passing or failing. Only one reexamination is allowed to replace the grade *E*.

Makeup Examinations

For students who receive the authorized grade *M* or *E*, 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 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 Office of Records and Institutional Research 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 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. Students seeking transfer credit for work at non-accredited 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. The question of credit in the College 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.

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

Residence Requirement

A minimum of four normal semesters (at least 60 semester hours), including the last two semesters (or 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 (or 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 the dean and the appropriate department in advance of taking the course. Such courses cannot fulfill College Program 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.

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 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, and the Office of Records and Institutional Research. College Program requirements may not be satisfied during a semester out of residence.

Senior-in-Absentia

A student wanting to earn a baccalaureate degree in the College of Arts and Science in absentia must have (a) completed the College Program 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. Students who have completed fewer than 105 credit hours may petition the Administrative Committee for special consideration.

The limitation on hours outside the College 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. 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.

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.

Should a student seek to transfer to Vanderbilt credit earned elsewhere while on leave of absence, it is mandatory that permission be obtained 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 materials are mailed 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 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, 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 registrar's office.

Academic Discipline

The College 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 required to participate in the programs of the Learning Center;
3. The student may be advised to take a leave of absence or to withdraw from the University;
4. The student may be required to take a leave of absence;
5. 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, be given a choice between the following options: (a) they may choose a probationary leave for the spring and return the next fall with two semesters in which to qualify for sophomore standing; (b) they may elect instead to participate in a special counseling program sponsored by the Learning Center, with sophomore standing required by the end of the spring semester or, with adequate progress in the spring, by the end of the summer (participation in the special counseling program is a condition for remaining in school for the spring).

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 the first-year writing requirement (see the section on Writing under College Program in Liberal Education, above), and successful completion of a freshman seminar (numbered 115 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 and completion of the whole of the writing requirement. 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. 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 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.



Courses of Study

1

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] for one semester and [3–3] for a two-semester course.

Length of a course (one semester or two) is indicated by whether it has a single or a double number:

210–211. Numbers are different. Either semester may be taken without the other.

220a–220b. Numbers are the same, indicating a year course. If credit hours are stated in hyphenated figures [3–3], students may take the first semester alone; but to take the second semester alone students must have the consent of the course instructor. A course is never credited as less than a full year unit if credit hours are stated in a single figure [6].

The semester in which a course is offered is indicated by the word FALL or SPRING in the course description. All two-semester courses begin in FALL and end in SPRING unless the course description specifies otherwise.

★ **Stars** mark certain introductory Arts and Science courses that are prerequisite for other courses in the department.

W symbols used in course numbers designate courses that will meet the College Program writing 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.

Some courses are tentative. Current information is available during registration. A definitive *Schedule of Courses* is published for the spring semester.

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 Studies

DIRECTOR Tracy Sharpley-Whiting

1 THE African American Studies program offers courses that treat the experiences of African-descended people both on the African continent and throughout the diaspora. Since a number of the courses required by the program are offered every other year, students must consult the program director soon after they decide to participate in the program to design a feasible course of study. Students may take courses on an elective basis or as part of an interdisciplinary major or minor. Courses taken at Fisk University may be counted as electives in the program of study.

Program of Concentration in African American Studies

The interdisciplinary major consists of 30 hours of core courses and 6 hours of electives. Requirements for the completion of the major include:

1. African American Studies 101, Introduction to African American Studies.

2. History 279–280.

3. History 253–254.

4. (*African American Humanities*) Three hours in the humanities, to be selected from: Art and Art History 239 (African American Art), Art and Art History 293 (Senior Seminar: Twentieth Century African American Art), Art and Art History 294–01 (Special Topic: African American Art—Harlem Renaissance), English 115W–41 (African American Autobiography), English 115W–49 (Afro-Caribbean Women’s Literature), English 115W–50 (African American Literature), English 115W–55 (Toni Morrison), English 115W–56 (Harlem Renaissance), English 263 (African American Literature), English 271 (Caribbean Literature), English 272d (Movements in Literature: The Contemporary Black Experience), English 272g (Movements in Literature: Harlem Renaissance), English 273c (Problems in Literature: Reading Race in Nineteenth-Century America), English 273d (Problems in Literature: Marginality in African American and South African Literature), English 274–01 (Major Figures in Literature: Toni Morrison); Music (MUSL) 148 (Survey of Jazz), MUSL 160 (World Music); Religious Studies 107 (African American Religious Tradition), Religious Studies 114 (Introduction to African American Philosophies of Religion), Religious Studies 115–05 (Gandhi, Luthuli, and King), Religious Studies 145 (Interfaith Dialogue and African American Culture), Religious Studies 204 (The Evangelical Movement in America), Religious Studies 205 (Black Church in America), Religious Studies 219 (Martin Luther King Jr. and the Social Roles of Religion), Religious Studies 250 (Black Islam in America); Spanish 294.

5. (*African Humanities*) Three hours in the humanities, to be selected from: English 115W-63 (African Literature and Theory); French 239 (The African Novel); Humanities 115-05 (African Literature); Music (MUSL) 160 (Musical Cultures of the Non-Western World), Music (MUSL) 171 (African Music); English 276 (Anglophone African Literature).

6. (*African American Social Sciences*) Three hours in social sciences, to be selected from: Anthropology 219 (Origins of African American Culture), Anthropology 224 (Political Anthropology: Crosscultural Studies in Conflict and Power), Anthropology 237 (Ethnicity, Race, and Culture); History 172 (Comparative Slavery in the Americas), History 258 (Rise of the Iberian Atlantic Empires, 1492-1700), History 260 (Caribbean History 1492-1983), History 264 (Brazilian Civilization), History 279 (History of Black Americans), History 280 (African American History to Reconstruction), History 295-01 (Undergraduate Seminar: America in the 1960s), History 295-05 (Undergraduate Seminar: Caribbean since 1945), History 381 (African American History in the Twentieth Century); Jewish Studies 194; Political Science 115W-02 (Race and Gender Politics), Political Science 287; Psychology 266 (Interpersonal and Intergroup Relations); Sociology 115-03 (Otherness in the U.S.: Images of Race, Gender, and Sexual Preference), Sociology 115-09 (Poverty and Inequality in the U.S.), Sociology 115-12 (Race and Race Relations in the Contemporary South), Sociology 115W-13 (Construction of Hip Hop), Sociology 226 (Gender, Race, and Class), Sociology 255 (Racial and Ethnic Minorities in the U.S.), Sociology 258 (The South in American Culture), Sociology 262 (Interpersonal and Intergroup Relations).

7. (*African Social Sciences*) Three hours in social sciences, to be selected from: Anthropology 231 (Archaeology of Africa); History 115W-46 (Crises in the Horn of Africa), History 254 (African History: Africa since 1800), History 260 (Caribbean History 1492-1983), History 264 (Brazilian Civilization), History 295-02 (Resistance and Adaptation to Slavery in Americas); Political Science 219 (African Politics); Sociology 275 (Sociology of Contemporary African Societies).

8. Six hours of elective credit selected from the approved lists of elective course offerings at Vanderbilt and Fisk universities. Consult the African American Studies program office for the approved lists of courses.

9. African American Studies 299, Senior Project in African American Studies. Students are required to complete an independent study in an area of interest to them during their senior year. This project will be selected in consultation with the program director and supervised by an affiliate faculty of the program. The focus will be on the use of interdisciplinary methods and materials that the students have accrued in their earlier courses. The project will involve independent readings and research, and result in a research paper on a salient aspect of the black experience, either across time or space (a spatial analysis could involve a comparative examination of the lives of African-origin people across the globe).

Minor in African American Studies

Students who select a minor in African American Studies must choose an emphasis either in African or African American studies. Each minor comprises 18 credit hours, and requires completion of the two-course (six hours) history sequence in the student's chosen geographic area (African or African American); and three hours each of humanities and social sciences course work in the respective geographic area. Six hours of electives must be chosen from the lists of approved courses offered by Vanderbilt or Fisk Universities, which may be obtained in the program office in 018 Furman Hall. Elective courses are not restricted to courses in the student's selected geographic area. Courses must be selected in consultation with the program director.

African American Studies 101. Introduction to African American Studies. Survey of the foundations of African American culture beginning with ancient African history and continuing through contemporary issues in the African American experience. The characteristics, developments, and dynamics of African American culture in the United States. SPRING. [3] Outlaw.

African American Studies 280a–280b. Internship. 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 African American Studies 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 African American Studies, and prior approval by the director of African American 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.

280a. Internship Readings and Research. Readings conducted under the supervision of a member of Vanderbilt's African American Studies Program and a substantial research paper are required. FALL, SPRING, SUMMER. [Variable credit: 1–6]

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 Studies major. FALL, SPRING, SUMMER. [Variable credit: 1–9]

African American Studies 289. Independent Study. FALL, SPRING. [Variable credit: 1–3 each semester]

African American Studies 294a–294b. Special Topics. [3]

African American Studies 299. Senior Project in African American Studies. Supervised readings and independent research to produce an interdisciplinary research paper, topic to be selected in conjunction with the director of African American Studies. Open only to seniors. [3]

American and Southern Studies

DIRECTOR Dale Cockrell

INTERIM DIRECTOR Michael Kreyling

PROFESSOR Vivien G. Fryd (Art History)

SENIOR LECTURER Elizabeth Boyd (American and Southern Studies)

Affiliated Faculty

PROFESSORS Lewis V. Baldwin (Religious Studies), Richard Blackett (History), Dale Cockrell (Music), Daniel B. Cornfield (Sociology), Thadious M. Davis (English), Dennis C. Dickerson (History), Sam B. Girgus (English/Film Studies), Bill Ivey (Sociology), Michael Kreyling (English), Vera Kutzinski (English), Dana D. Nelson (English), Bruce I. Oppenheimer (Political Science), Lucius Outlaw Jr. (Philosophy), Thomas A. Schwartz (History), John J. Stuhr (Philosophy), Cecelia Tichi (English), Daniel H. Usner (History), Susan Ford Wiltshire (Classical Studies)

ASSOCIATE PROFESSORS Victor Anderson (Religious Studies), Karen E. Campbell (Sociology), David Lee Carlton (History), Teresa A. Goddu (English), Jon W. Hallquist (Theatre), Amy H. Kirschke (Art History), Jane Landers (History), Richard A. Pride (Political Science), John M. Sloop (Communication Studies)

ASSISTANT PROFESSORS Tina Y. Chen (English), Anne T. Demo (Communication Studies), Sean X. Goudie (English), Melanie Lowe (Music), Charles E. Morris III (Communication Studies), Rowena Olegario (History), Shawn Salvant (English)

1 THE American and Southern Studies program offers an interdisciplinary major for students interested in deepening and broadening their understanding of the American experience in all its aspects and dimensions. Students majoring in this field often define their intellectual interests in such areas of concentration as American politics and culture; American political and social thought; art and literature in America; race, gender, and ethnicity in America; modern America; and the cultural experience of the American South. Students are encouraged to integrate traditional subjects and disciplines in a manner that reflects their own interests, ambitions, and needs. The major is designed for those students with interests in interdisciplinary studies of the humanities and social sciences, prelaw training, or careers in communications, journalism, public service, and education. Students are also encouraged to place their studies of American culture in the context of historic changes occurring in cultures outside the United States, ranging from Europe to Central and South America, Africa, and Asia.

The program is directed by Dale Cockrell, Professor of Musicology and American and Southern Studies and chair of the College Committee on American and Southern Studies.

Program of Concentration in American and Southern Studies

The interdisciplinary major consists of 36 hours of course work, to be distributed among various disciplines and perspectives as indicated below. Emphasis is on cultural, political, economic, and related trends or

events that contribute to the making of American society and character in all its diversity. Students should expect to study the problems, developments, and crises of social history, technology, visual studies, gender, race, ethnicity, class, media, and artistic, political, and literary culture.

Students must concentrate on a theme or topic of special interest. Much of the work in the concentration will lead to or inform the research and production of a Senior Project (AMST 297) or the writing of an Honors Thesis (AMST 298/299). The concentration will be developed in consultation with an adviser.

Students should note that no more than 6 hours at the 100 level can count toward the interdisciplinary major and that often prerequisites exist for courses that may be used in the major. Independent study, 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 toward meeting requirements in both majors. Students seeking a minor may count a maximum of 3 hours of course work toward meeting requirements in both their major and minor.

Requirements for the interdisciplinary major in American and Southern Studies include completion of the following:

1. American and Southern Studies 100 or American and Southern Studies 101. (3 hours)

2. American and Southern Studies 294. (3 hours)

3. American and Southern Studies 295 or American and Southern Studies 250. (3 hours)

4. *American Culture*. Courses in cultural studies will be selected in consultation with the student's adviser. Such courses might be drawn from, but not limited to, offerings in American and Southern Studies, Art and Art History, Communication Studies, English, Music, Philosophy, Religious Studies, and Theatre; at least 3 hours must be in English. (6 hours)

5. *American History*. Courses in American history will be selected in consultation with the student's adviser. Such courses might be drawn from, but not limited to, offerings in African American Studies, Classical Studies, Economics, European Studies, and History; at least 3 hours must be in History. (6 hours)

6. *American Society*. Courses that adopt a broadly sociological perspective will be selected in consultation with the student's adviser. Such courses might be drawn from, but not limited to, offerings in Anthropology, Political Science, Sociology, and Women's Studies. (6 hours)

7. *Concentration*. Either American and Southern Studies 297 and two appropriate courses drawn from those suggested below, or American and Southern Studies 298/299 and one appropriate course drawn from those suggested below. (9 hours)

Minor in American and Southern Studies

The minor in American and Southern Studies consists of 18 hours of course work, distributed as follows:

1. American and Southern Studies 100 or American and Southern Studies 101. (3 hours)
2. American and Southern Studies 294. (3 hours)
3. American and Southern Studies 295. (3 hours)
4. *American Culture*. Chosen from suggested courses in American and Southern Studies, Art and Art History, Communication Studies, English, Music, Philosophy, Religious Studies, and Theatre. (3 hours)
5. *American History*. Chosen from suggested courses in African American Studies, Classical Studies, Economics, European Studies, and History. (3 hours)
6. *American Society*. Chosen from suggested courses in Anthropology, Political Science, Sociology, and Women's Studies. (3 hours)

AFRICAN AMERICAN STUDIES: 101, Introduction to African American Studies.

AMERICAN AND SOUTHERN STUDIES: 104, Men and Women in American Society; 226, Gender, Race, and Class; 240, Topics in American Studies; 250, Senior Tutorial; 280a–280b, Internship, Research, Reading, and Training; 289a–289b, Independent Readings and Research; 295, Undergraduate Seminar in American and Southern Studies; 297, Senior Project; 298, Senior Honors Research; 299, Senior Honors Thesis.

ANTHROPOLOGY: 214, North American Indians; 229, North American Archaeology.

ART AND ART HISTORY: 239, African American Art; 240, American Art to 1865; 241, American Art 1865 to 1945; 245, Art of Pre-Columbian America; 255, Native American Art.

CLASSICAL STUDIES: 222, Classical Tradition in America.

COMMUNICATION STUDIES: 220, Rhetoric of the American Experience, 1640–1865; 221, Rhetoric of the American Experience, 1865 to the Present; 223, Values in Modern Communication; 224, Rhetoric of Social Movements; 228, Rhetoric and Public Memory; 241, Rhetoric of Mass Media; 242, Communication, Culture, and Consciousness.

ECONOMICS: 212, Labor Economics; 226, Economic History of the United States; 245, History of American Enterprise; 246, Unions, Management, and Public Policy; 251, Wages, Employment, and Labor Markets; 266, Problems in United States Economic History; 267, Economics of Poverty and Discrimination; 286, Economics of Human Resources.

ENGLISH: 211, Representative American Writers; 212, Southern Literature; 232a–232b, Twentieth-Century American Novel; 260, Nineteenth-Century American Women Writers; 263, African American Literature; 265, Film and Modernism; 266, Nineteenth-Century American Literature; 267, Desire in America; 268a, America on Film: Art and Ideology; 268b, America on Film: Performance and Culture; 269, Special Topics in Film; 270, Reading Film; 271, Caribbean Literature; 272, Movements in Literature (when an American topic is offered); 273, Problems in Literature (when an American topic is offered); 275, Latino-American Literature; 277, Asian American Literature; 286a–286b, Twentieth-Century Drama.

EUROPEAN STUDIES: 201, European Society and Culture.

HISTORY: 170, History of the United States to 1865; 171, History of the United States since 1865; 172, Slavery in the Americas, 1492–1822; 173, The First New Nation; 176, The United States in the 1960s; 177, The U.S. and the Cold War; 201, Twentieth Century African American Religious History; 204, History of Medicine, 1750 to Present; 205, Historical Perspectives on Women, Health, and Sexuality; 258, Rise of the Iberian Atlantic Empires 1492–1700; 259, Decline of the Iberian Atlantic Empires 1700–1820; 267, The Frontier in Early America: War and Cultural Interaction; 268, The English Atlantic World, 1500–1688; 269, Cultural History of the First British Empire, 1707–1783; 271, The Era of Reform; 272, The U.S. in the Era of the Civil War; 274, The United States, 1916–1945; 275, Recent America: The United States since 1945; 276, The Old South; 277, The New South; 278, History of Appalachia; 279, African American History to Reconstruction; 280, African American History since Reconstruction; 281, The U.S. and the Vietnam War; 282, The U.S. and the World; 283, The U.S. as a World Power; 284, American Social History to 1865; 285, American Social History since 1865; 286, Gender, Sexuality, and Race in Early American Culture, 1600–1865; 287, Gender, Sexuality, and Race in American Culture, 1865 to the Present; 288, History of American Thought from the Puritans to the Civil War; 289, History of American Thought since 1865; 290, Economic History of the United States; 291, History of American Enterprise; 292, Problems in United States Economic History; 294, Selected Topics in History (when an American topic is offered); 295, Undergraduate Seminar in History (when an American topic is offered).

MUSIC: 103, Musical Theatre in America: A Cultural History; 147, American Music; 148, Survey of Jazz; 149, American Popular Music; 151, The Blues; 261, Music, Identity, and Diversity; 264, Exploring the Film Soundtrack.

PHILOSOPHY: 222, American Philosophy; 234, Philosophy of Education.

POLITICAL SCIENCE: 150, U.S. Elections; 204, American Political Thought; 222, American Foreign Policy; 240, Political Parties; 241, American Public Opinion and Voting Behavior; 242, Political Communication; 243, Political Campaigns and the Electoral Process; 244, The Legislative Process; 245, The American Presidency; 246, Religion and Politics in the United States; 247, American Political Culture; 248, Intentional Communities; 253, Ethics and Public Policy; 255, Public Policy Problems; 261, Constitutional Interpretation; 262, The Judicial Process; 287–288, Selected Topics (when an American topic is offered).

RELIGIOUS STUDIES: 107, Introduction to African American Religious Traditions; 110W, Introduction to Southern Religion and Culture; 114, Introduction to African American Philosophies of Religion; 117, Islam in the African American Experience; 122, Positive Thinking in American Religion and Science; 145, Interfaith Dialogue and African American Culture; 204, Protestant Conservatism and the Culture Wars; 205, The Black Church in America; 217, The History of Religion in the United States; 219, Martin Luther King and the Social Roles of Religion; 252, Islam in America.

SOCIOLOGY: 204, Self, Society, and Social Change; 224, Women and the Law; 230, The Family; 231, Criminology; 232, Delinquency and Juvenile Justice; 233, Deviant Behavior and Social Control; 234, Prison Life; 235, Contemporary American Society; 236, Class, Status, and Power; 237, Society and Medicine; 240, Law and Society; 241, Art in Society; 242, The Urban Community; 244, Politics, State, and Society; 245, Music in Society; 246, Sociology of Religion; 248, Popular Culture Dynamics; 249, American Social Movements; 250, Gender in American Society; 251, Women and Public Policy in America; 254, Schools and Society; 255, Racial and Ethnic Minorities; 256, Race, Gender, and Sports; 257, Gender, Sexuality, and the Body; 258, The South in American Culture; 261, Work and Family in American Life; 264, Social Dynamics of Mental Health; 267, Seminar on Gender and Violence; 269, Ethnic American University Journeys; 294, Seminar in Selected Topics (when an American topic is offered).

THEATRE: 204, Development of the American Theatre; 205, American Musical Theatre.

WOMEN'S STUDIES: 243, Images of Masculinity; 270, Lesbian Studies: Identity, Desire, and Representation; 290, Senior Seminar in Selected Topics (when an American topic is offered); 295, Selected Topics (when an American topic is offered).

Honors Program in American and Southern Studies

The honors program in American and Southern Studies is designed to afford superior students the opportunity to pursue more intensive work in their area of thematic concentration. The program requires (a) a 3.0 cumulative grade point average in all general University courses, and a 3.3 grade point average in American and Southern Studies courses, (b) 6 hours of independent research, AMST 298–299 (Honors Research and Thesis), normally taken during the senior year, (c) an honors thesis to be completed in the spring of the senior year, and (d) successful completion of an honors oral examination on the topic of the thesis.

American and Southern Studies 100. Introduction to American Studies. An interdisciplinary approach to American culture, character, and life. FALL, SPRING. [3] Boyd, Cockrell.

American and Southern Studies 101. Introduction to Southern Studies. An interdisciplinary approach to Southern American culture, character, and life from the interrelated perspectives of history and culture (literature, music, religion, images, rituals, materials, objects). SPRING. [3] Boyd.

American and Southern Studies 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. [3] (Not currently offered)

American and Southern Studies 115, 115W. Freshman Seminar. [3]

American and Southern Studies 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. [3] (Not currently offered)

American and Southern Studies 240. Topics in American and Southern Studies. Topics of special interest on American culture or society, as announced in the *Schedule of Courses*. May be taken three times for credit when topics vary. FALL, SPRING. [3]

American and Southern Studies 250. Senior Tutorial. Supervised readings, joint discussions, and independent research on a topic related to the American experience, to be selected in consultation with the director of American and Southern Studies. Open only to juniors and seniors. FALL, SPRING. [3] Staff.

American and Southern Studies 280a–280b. Internship, Research, Reading, and Training. 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. 280a: Internship, research, and reading. FALL, SPRING, SUMMER. [Variable credit: 1–6]. 280b: offered on a pass/fail basis only and must be taken concurrently with 280a. FALL, SPRING, SUMMER. [Variable credit: 1–6] Staff.

American and Southern Studies 289a–289b. Independent Readings and Research. Independent readings and/or research on approved topics relating to American society and culture. [Variable credit: 1–3 each semester, not to exceed a total of 6 in 289a–289b combined] Staff.

American and Southern Studies 294. The American Studies Workshop. Issues, methodologies, traditions, approaches, and problems in the interdisciplinary field of American Studies. Limited to juniors and seniors with preference given to American and Southern Studies majors and minors. FALL, SPRING. [3] Boyd.

American and Southern Studies 295. Undergraduate Seminar in American and Southern Studies. Advanced reading, research, and writing in a particular area of American and Southern Studies. May be taken no more than two times, and not twice from the same professor. Limited to juniors and seniors with preference given to American and Southern Studies majors. FALL, SPRING. [3]

American and Southern Studies 297. Senior Project. A project conceived, developed, and completed under supervision of the American and Southern Studies faculty. Normally open only to senior American and Southern Studies majors. SPRING. [3] Boyd.

American and Southern Studies 298. Senior Honors Research. Acquisition, reading, and analysis of primary source research material. Open only to senior honors students. FALL. [3] Staff.

American and Southern Studies 299. Senior Honors Thesis. Writing an honors thesis under the supervision of the thesis adviser. SPRING. [3] Staff.

Anthropology

CHAIR Thomas A. Gregor

DIRECTOR OF UNDERGRADUATE STUDIES Beth A. Conklin

DIRECTOR OF GRADUATE STUDIES Arthur A. Demarest, Tom D. Dillehay

PROFESSOR EMERITUS Ronald Spores

PROFESSORS Arthur A. Demarest, Tom D. Dillehay, Volney Gay, Thomas A. Gregor,
William L. Partridge

ASSOCIATE PROFESSORS Beth A. Conklin, Edward F. Fischer, William R. Fowler Jr.

ASSISTANT PROFESSORS Gregory Barz, Francisco Estrada-Belli, Robert Hamrick (Spring),
Annabeth Headrick, John Wayne Janusek, Norbert Ross, Tiffany Tung

RESEARCH ASSISTANT PROFESSOR Patricia Foxen

LECTURER Matt O'Mansky

1 ANTHROPOLOGY is the study of human biology, evolution, society, and culture. The faculty in anthropology at Vanderbilt is nationally prominent in the study of pre-Columbian cultures and the ancient civilizations of the New World. Classroom teaching, symposia, social activities, and summer opportunities are enhanced by faculty and teaching

fellows' involvement in ongoing archaeological and ethnographic research in Mexico, Central America, and South America.

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 structure of the social group and the values and ideas that shape human conduct; and physical anthropology, which examines topics such as human evolution and human biology. Anthropology students develop a broad understanding of cultural development and diversity and are encouraged to reach a personal synthesis of scientific findings on the nature of human ways of life. This preparation is useful in all professional careers.

Program of Concentration in Anthropology

The major in anthropology requires completion of at least 30 hours of course work, as follows:

1. Three 100-level surveys (Anthropology 101, 103, and 104) covering three major subfields of anthropology: cultural anthropology, physical anthropology, and archaeology.

2. A minimum of three hours from each of the groups below:

Group I—Comparative Anthropology and Anthropological Theory:

206, 218, 223, 224, 226, 228, 233, 234, 237, 240, 250, 260, 262, 263, 264, 265, 266, 267, 284; Art and Art History 130

Group II—Archaeology and Physical Anthropology:

106, 173, 207, 211, 212, 213, 216, 217, 218, 225, 227, 229, 230, 231, 239, 246, 248, 251, 253, 254, 270, 271, 272, 273, 280; Art and Art History 245

Group III—Ethnography, Ethnohistory, and Linguistics:

102, 201, 203, 210, 214, 220, 231, 241, 247, 249, 259, 275; Art and Art History 255, 256, 257

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 hours of credit must be at the 200 level.

5. With the approval of the student's major adviser, a maximum of 3 hours of credit 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 his or her major adviser.

- Biological Sciences 205, 239; Classics 217; Earth and Environmental Sciences 150; History 253, 264; Mathematics 127a, 127b, 180; Music 150, 160, 278; Psychology 242; Religious Studies 130, 131, 235, 237, 254; Sociology 201, 217, 220, 230, 261, 275, 277, 279; Spanish 221, 223.

Honors Program

The honors program in anthropology is designed to afford superior students the opportunity to pursue more intensive work within their 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.

101. Introduction to Anthropology. An introduction to general anthropology, the study of diverse cultures in both the contemporary world and the past. The ways in which cultures have adapted and developed, bringing to bear the understanding derived from the four sub-disciplines of anthropology: cultural, physical, linguistics, and archaeology. Intended for students with a general interest in the field of anthropology. FALL, SPRING. [3] Conklin, Ross.

102. Anthropology of Contemporary Issues. Current problems in complex, industrialized, and Western cultures. Field methods and ethical dilemmas of conducting research in contemporary settings. Anthropological perspectives on mass media, international business, urban gangs, poverty, immigration, development projects, health care, modern myths and rituals. [3] (Not currently offered)

103. Origins and Evolution of Human Culture. Introduction to biological and cultural evolution from primate origins to the end of the Stone Age. Origins and diversification of the world's first major cultural traditions. Archaeological evidence and controversies in interpretation. Not open to students who have taken 271. SPRING. [3] Tung.

104. The Rise and Fall of Civilization. A comparative survey of the archaeological evidence on the origins, development, and collapse of the great early civilizations of the world. The transformation of human societies from the first settled villages to urban states in Mesopotamia, Egypt, India, China, Mexico, and Peru. Discussion and debate of the archaeological discoveries, alternative interpretations, and general theories of cultural evolution. FALL. [3] Janusek.

106. Evolution and Creationism. History of the controversy between evolution and creationism. Transformation of debate in light of new discoveries. Interplay between science and culture. Discussion of creationist challenges to Darwinian theory. Realms of science and religion in human inquiry. [3] (Not currently offered)

115. Freshman Seminar. FALL. [3]

115W. Freshman Seminar. [3] (Not currently offered)

173. Social Behavior of Nonhuman Primates. Behavior and appearance of nonhuman primates as responses to environmental and social factors. Diet, reproduction, and social interaction among lower primates, monkeys, and apes as a foundation for interpreting the origins of humans and their behavior. [3] (Not currently offered)

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. SPRING. [3] Hamrick.

203. Anthropological Linguistics. An introduction to the study of language in its anthropological context. Topics include theories of the origin of language, prehistory of languages and language groups, the use of vocabulary as a guide to the ways societies classify their universe, and possible deterministic interrelationships between language and culture. [3] (Not currently offered)

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] (Not currently offered)

207. Energy, Environment, and Culture. The relationship between human beings and the environments that sustain them. The 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] (Not currently offered)

210. Peoples and Cultures of Latin America. Survey of Latin America, including both its native cultures and its Spanish and Portuguese heritage. Fundamental traditions of Latin America, including marriage and the family, the relationship between men and women, racial and ethnic identity, social class, and religion. Special attention to the organization of peasant communities, contemporary urban life, poverty, and economic development. [3] (Not currently offered)

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. SPRING. [3] Fowler.

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] (Not currently offered)

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] (Not currently offered)

214. North American Indians. A comparative survey of the Indian societies of North America, their archaeological origins, development, and changing adaptation to white society over the past four hundred years. [3] (Not currently offered)

216. Ancient Cities. Comparative examination of early cities in the Old World and pre-Columbian America. Analysis of social and economic processes supporting pre-industrial urbanism. Role of geography, ideology, trade, and settlement systems in the rise of early urban societies. SPRING. [3] Janusek.

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. SPRING. [3] Estrada-Belli.

218. Reconstructing Prehistoric Economic Systems. Anthropological and economic theory in prehistoric archaeology. Methods for reconstructing prehistoric economic systems. Models for production and exchange. [3] (Not currently offered)

220. Peoples and Cultures of Mexico. Indian, peasant, and urban cultures in Mexico from late pre-Hispanic times to the present. Ethnic and regional diversity, urban-rural relationships, class structure, and national integration. [3] (Not currently offered)

223. Anthropology of War. Theoretical discussion and cross-cultural comparison of the causes and nature of war and human aggression. Conflict resolution and peace systems. Case studies ranging from primate groups to less complex societies to high civilization. [3] (Not currently offered)

224. Political Anthropology: Crosscultural Studies in Conflict and Power. 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] (Not currently offered)

225. The Archaeology of Ancient Asia. Development of Asian culture from the Ice Age hunter-gatherers to the first civilizations of China, Japan, Thailand, Indochina, Indonesia, and the Philippines. [3] (Not currently offered)

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. FALL. [3] Ross.

228. Family, Marriage, and Kin. The family, household, division of labor, and obligations of kinship in non-Western societies. Marriage, age and gender, and kinship networks in relation to economics and political life. Comparisons with kinship in Western cultures. [3] (Not currently offered)

229. North American Archaeology. The origins of native North American culture. Migration from Asia, early hunters and gatherers, and the extinction of ancient fauna. Evolution of social complexity, ecological adaptations, and prehistoric interaction as seen in the archaeological record of the continent. [3] (Not currently offered)

230. Environment and Archaeology. Human impact on environment, subsistence, and settlement. The contribution of archaeology, geology, and botany to human ecology. [3] (Not currently offered)

233. Culture, Ecology, and International Development. Theories of development and social change in Third World societies. Case studies of development programs in peasant and tribal communities in Asia, Africa, and Latin America. Ecological, social, and political issues in problems of food and agriculture, rain forest development, and grassroots development strategies. [3] (Not currently offered)

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] (Not currently offered)

237. Ethnicity, Race, and Culture. Key concepts used in the history of anthropology to explain social diversity; theories of racial typology, cultural traditions, and ethnic identity. Role of rituals and symbols in expressing social identity and group membership. Cross-cultural comparison of pluralistic and homogeneous societies. Relation of ethnicity to ties of kinship, language, heritage, religion, and nationality. Changes in interethnic relations through assimilation, acculturation, cooperation, and polarization. [3] (Not currently offered)

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] (Not currently offered)

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; ethnographic study of modern descendants of the Aztecs. [3] (Not currently offered)

248. Ancient Empires and Civilizations of South America. 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. SPRING. [3] Janusek.

249. Indians of South America. Hunters and gatherers, tropical forest peoples, chiefdoms, and great civilizations of native South America. Portuguese and Spanish influences. Emphasis on major anthropological studies and comparisons with other cultural areas. [3] (Not currently offered)

250. Shamanism and Spiritual Curing. A crosscultural inquiry into shamanism and sorcery. Examines altered states of consciousness, hallucinogens, spirit possession, and non-traditional techniques of curing. Contrasts shamanism with Western approaches to curing. Implications for religion, theories of the mind, and dream analysis. [3] (Not currently offered)

251. Chiefdoms. The origins, evolution, and organization of the world's chiefdoms and other pre-state societies. The rise of social stratification and political hierarchies. The organization of production and exchange. A comparative perspective with ethnographic, historical, and archaeological evidence. [3] (Not currently offered)

253. Ancient Civilizations of Mexico. Development, nature, and collapse of the great Pre-Columbian civilizations of Mexico. Origins of agriculture and complex society; rise of the enigmatic Olmec civilization; development of Teotihuacan; and the militaristic empires of the Toltecs and Aztecs. Religion, politics, and social process. Recent controversies and ongoing archaeological excavations. [3] (Not currently offered)

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. FALL. [3] Janusek.

258. Mayan Languages and Linguistics. Introduction to the study of Mayan languages of Central America. Linguistic terminology and methodology derived from Mayan languages and literature. Hieroglyphic writing, colonial documents, glottochronology, and the linguistic characteristics of modern Mayan languages. [3] (Not currently offered)

259. Maya Culture and Ethnography. Survey of the different cultural groups of the Maya peoples of Mexico and Guatemala. Comparison of cultural features and social and political history. Relationship of culture and language. Introduction to the Maya language family with a focus on Tzotzil. SPRING. [3] Ross.

260. Medicine, Culture, and the Body. (Also listed as History 206) 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. FALL. [3] Conklin.

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. SPRING. [3] Ross.

263. Myth and Legend: The Anthology of Oral Tradition. Narrative traditions and folklore of Western and non-Western cultures. Myths of world creation, human origins, and transformation. Relationship of myth to dream, historical narrative, and social organization. Myth telling and performance. The structure and theory of myth. [3] (Not currently offered)

264. Human Nature and Natural Law: Perspectives from Science and Religion.

Conflicting views on the origins of morality and values. Ethical beliefs as deriving from culture or as reflecting a global human nature. Consideration of human universals such as the incest taboo, marriage and family, and religion. Efforts to interpret values and ethical principles as reflecting human biology and evolution, self-interest, altruism and cooperation. [3] (Not currently offered)

265. Psychological Anthropology. (Also listed as Sociology 265) How personality and culture affect each other. Socialization and the life cycle, the definition of sex roles, individual psychology and group aggression, religion and group personality, and the nature of mental illness and normalcy in non-Western societies. SPRING. [3] Gregor.

266. Gender and Cultural Politics. Cross-cultural comparison of women's roles and status in western and non-Western societies. Role of myths, symbols, and rituals in the formation of gender identities and the politics of sexual cooperation, conflict, and inequality. Case studies from Africa, the Middle East, Europe, North and South America, Asia, and Melanesia. [3] (Not currently offered)

267. Life, Death, and the Human Body. Biological and social perspectives on the human body through the life cycle. Concepts of gender, health, sickness, and the nature of beauty and bodily adornment. The linguistics of body language and language that describes the body. The relationship of body, soul, afterlife, and spiritual beliefs. [3] (Not currently offered)

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. FALL. [3] Tung.

271. Human Evolution. Structural and behavioral changes in hominids leading to modern *Homo sapiens*. Evolutionary theory, paleontological evidence, and nonhuman primates as the bases for interpreting sequential development of pre-modern humans. Prerequisite: 103. FALL. [3] Tung.

272. Human Variation. Biological differences among contemporary human groups. Adaptational features of humans as biological organisms. Use of biological variation for understanding human history and geographic distribution. SPRING. [3] Tung.

273. Primate Evolution. Evolution and diversification of primate order from the first primates to the rise of the Great Apes. Skeletal anatomy, evolutionary theory, and living primates as bases for exploring the development of nonhuman primates. Prerequisite: 103 or 173. [3] (Not currently offered)

275. Sociocultural Field Methods. Research design and proposal writing, access to data, ethical issues, sampling techniques, interviewing questionnaire design and question writing, data analysis. FALL. [3] Berk-Seligson.

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] (Not currently offered)

282. Settlement Patterns and the Human Landscape. 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] (Not currently offered)

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. FALL, SPRING. [3] Fowler, Estrada-Belli.

288a–288b. Independent Research. Readings on selected topics (of the student's choice) and the preparation of reports. FALL, SPRING, SUMMER. [Variable credit: 1–3 each semester] Staff.

289. Field Research. Directed field research (on topics of the student's choice). FALL, SPRING, SUMMER. [Variable credit: 1–6 each semester] Staff.

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. FALL, SPRING. [Variable credit: 1–6 each semester; may be repeated to a maximum of 6] Staff.

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. FALL, SPRING. [Variable credit: 1–6 each semester; may be repeated to a total of 6] Staff.

302. Quantitative Methods in Anthropology. FALL. [3] Ross.

303. Seminar in Maya Ethnography. [3] (Not currently offered)

307. Human Variation and Osteology. [3] (Not currently offered)

309. Seminar in Culture Ecology. [3] (Not currently offered)

310. Archaeological Method and Theory. FALL. [3] Fowler.

311. Formal and Qualitative Approaches in Anthropology. FALL. [3] Ross.

313. Yucatec Maya Language and Literature. [3] (Not currently offered)

314. Seminar in Anthropological Theory I: History, Themes, and Enduring Contributions. FALL. [3] Gregor.

315. Seminar on Anthropological Theory. [3] (Not currently offered)

316. Anthropology of Adaptation. [3] (Not currently offered)

320. Seminar in Ethnography. [3] (Not currently offered)

321. Seminar in Social Organization. [3] (Not currently offered)

322. Culture, Structure, Personality. [3] (Not currently offered)

325. The Collapse of Civilizations: General Theories and the Maya Collapse. [3] (Not currently offered)

329. The Anthropology of Death: Body, Place, and Memory. [3] (Not currently offered)

350. Seminar in Mesoamerican Archaeology. [3] (Not currently offered)

355. Seminar in Mesoamerican Art. [3] (Not currently offered)

360. Seminar in South American Archaeology and Ethnography. [3] (Not currently offered)

Arabic

210a–210b. Elementary Arabic. Arabic script, elements of grammar, pronunciation, reading, writing, and elementary conversation. Arabic culture and life through traditional and contemporary texts and audio-visual materials. Three hours of class work per week with an additional two hours a week of individual work in the language laboratory. FALL, SPRING. [4–4] Elkhateeb-Musharraf.

220a–220b. 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 a week of individual work in the language laboratory. Prerequisite: 210b or equivalent credit by examination. FALL, SPRING. [4–4] Elkhateeb-Musharraf.

Art and Art History

CHAIR Robert L. Mode

DIRECTOR OF UNDERGRADUATE STUDIES Leonard Folgarait

DIRECTOR OF GRADUATE STUDIES Ljubica D. Popovich

PROFESSORS EMERITI Robert A. Baldwin, Thomas B. Brumbaugh, Donald H. Evans,
F. Hamilton Hazlehurst, Milan Mihal

PROFESSORS Michael L. Aurbach, Leonard Folgarait, Vivien Green Fryd,
Christopher M. S. Johns, Marilyn L. Murphy

ASSOCIATE PROFESSORS Amy Helene Kirschke, Robert L. Mode, Ljubica D. Popovich,
Barbara Tsakirgis

ASSISTANT PROFESSORS Annabeth Headrick, Mark Hosford, Tracy Miller

SENIOR LECTURERS Susan DeMay, Ronald Porter, Libby Rowe, Sheri Shaneyfelt,
Carlton Wilkinson

1 THE Department of Art and Art History combines studio art and art history. Courses in studio are offered in a variety of media, which provide wide ranging methods and perspectives about art. The historical treatment of major fields in world art, from ancient through modern, serves to connect the arts and other humanities. Together these emphasize the creative and critical approaches to learning in diverse areas of the two disciplines.

Many of our students will use the programs in Art and Art history as a foundation for careers in which analytic 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 art and/or art history, and for employment in galleries, museums, commercial art, 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 creative approaches to learning.

The Art and Art History student association, VISION, sponsors panels, lectures, debates, and other programs where majors can meet and engage in lively discussions with artists and art historians. Every year this organization sponsors 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 for study and creative experience abroad. The Hamblet Award provides the means for travel and independent art activity for one year, culminating in a one-person exhibition at the Fine Arts Gallery. Students wanting to participate in the spring competition must be graduating seniors who have taken at least three studio art courses at Vanderbilt prior to the spring semester of their senior year.

The department curriculum shares course work with departments and programs in complementary disciplines, including African American Studies, American and Southern Studies, East Asian Studies, European Studies, Latin American and Iberian Studies, Women's Studies, Anthropology, and Classical Studies. Art and Art History majors share in the activities of VISION and work closely with departmental advisers.

A&S

Program of Concentration in Art

The studio track of the Art and Art History major requires 33 hours and presents our students with the opportunity to explore their ideas in a visual language, 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, and sculpture, as well as the opportunity to explore contemporary processes involving video, digital, and photographic media. 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 early modern-contemporary art history offerings, studio track majors are encouraged to take courses in pre-Renaissance and/or non-Western art history.

Requirements for the Program of Concentration in Art

Drawing (6 hours)

- Options: ARTS 102, 202, 203 (Drawing and Composition), or ARTS 105, 205 (Life Drawing)

Studio electives (15 hours), which must include at least:

- One 2-D course (Printmaking, Painting, Photography, or Digital) and
- One 3-D course (Sculpture, Assemblage, or Ceramics)
- Within the 15 hours, students must take at least two 200-level ARTS courses

AHST 111 History of Western Art: Renaissance to Modern Art

(prerequisite for entry into 200-level ARTS courses), plus one course

from AHST 231, 239, 242, PHIL 240 or 241, and one additional upper-level art history course—AHST 200 to 290 (9 hours)

Directed Study: Senior Show and Contemporary Practices (3 hours)

Program of Concentration in Art History

The art history track for the Art and Art History major requires 30 hours and gives students the opportunity to study the history of art across a wide range of historical periods, from ancient to contemporary. The program is designed to cover breadth and to allow for depth in particular periods and areas of interest. By requiring courses at both the lecture and seminar levels, the program aims to provide a basis of comprehensive knowledge and the challenge of more specialized instruction.

Students should consider related offerings in the department (including studio art, particularly important for students working in modern and contemporary areas), in interdisciplinary programs, and in aesthetics. Those planning graduate work in art history should pursue advanced studies—which may include honors—and consider advanced courses in other departments offering complementary course work. Advanced language studies are strongly recommended, as graduate programs expect fluency in one language for the M.A. and two for the Ph.D., with French and German the most commonly required.

Requirements for the Program of Concentration in Art History

Area requirements (15 hours) — five art history courses, one each from the following areas:

- A. *Ancient*: CLAS 203, 204, 205, 206, 217
- B. *Medieval*: AHST 210, 211, 214, 215
- C. *Renaissance and Baroque*: AHST 212, 218, 219, 221, 222, 224
- D. *Modern*: AHST 230, 231, 232, 239, 240, 241, 242
- E. *Non-western*: AHST 252, 253, 254, 255, 256, 257

Electives (9 hours) — three upper-level courses in art history (AHST 200 to 290) in addition to the area requirements, PHIL 240, 241, with one studio art course (ARTS) optional as an elective.

Advanced Seminars in Art History, AHST 295 (6 hours)

Honors Program in Art and Art History

The honors program in Art and Art History 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 Art and Art History majors with junior standing, who meet a 3.0 grade point average in all general University courses and a 3.30 grade point average in Art and Art History courses. They also must be approved for acceptance into the honors program by the departmental faculty. Completion of the

program requires 6 hours of study through any combination of hours enrolled in AHST 298: Honors Research and AHST 299: Honors Thesis; submission of an honors thesis; and successful completion of an oral honors examination. These independent research hours are expected to be in excess of the 30 hours required for the major in Art and Art History. Students meeting these requirements receive a Vanderbilt diploma that records Honors or High Honors in Art and Art History, depending on the quality of their thesis, their grades in Art and Art History courses, and their examination results.

Minor in Architectural History

The minor in architectural history requires 18 hours of course work, including the following:

Two 100-level courses from 110, 111, 120, and 130, plus four upper-level courses that may be chosen from CLAS 203, 204, 205, 206, 217, AHST 210, 211, 220, 223, 232, 245, 251, 255, 256, and 257.

Minor in Art History

The minor in art history requires 18 hours of course work, including the following:

Two 100-level courses from 110, 111, 120, and 130, plus any four upper-level art history courses (AHST 200 through 290, CLAS 203, 204, 205, 206, and 217).

Minor in Studio Art

The minor in studio art requires 18 hours of course work, including the following:

AHST 111 (History of Western Art: Renaissance to Modern), ARTS 102 (Drawing and Composition), and four other ARTS courses, with at least two at the 200-level. (One independent research course may be substituted with permission of a studio art professor toward additional advanced work in a medium.)

Art Studio (ARTS)

101. Introduction to Studio. (Formerly Art and Art History 103) Experimentation with color, mixed-media, graphic media, and other processes. Stress on development of ideas. FALL, SPRING. [3] Aurbach, Hosford, Murphy, Porter, Rowe.

102. Drawing and Composition I. (Formerly Art and Art History 102) Introduction to drawing: visual problems related to observation, idea formation, composition, media and various forms of expression. Figure and landscape may be included. FALL, SPRING. [3] Aurbach, Hosford, Murphy, Porter.

105. Life Drawing. (Formerly Art and Art History 135) The expressive potential of the human figure as a subject through experience with models in a variety of figure-environment situations. Prerequisite: 102. FALL. [3] Hosford, Porter.

110. Relief Printing. (Formerly Art and Art History 107) Introduction to printmaking media including monotype and relief. Traditional and experimental approaches. Prerequisite: 102. FALL, SPRING. [3] Hosford, Murphy.

111. Screen Printing. Medium of screen printing as an art-making process. Traditional and experimental approaches. Prerequisite: 102. SPRING. [3] Hosford.

120. Photography. (Formerly Art and Art History 108) A studio course in black-and-white photography. Composition, quality of image, and photographic manipulation. FALL, SPRING. [3] Rowe, Wilkinson.

121. Alternative Photography. (Formerly Art and Art History 109) Lensless imaging; creation of pinhole cameras and images. Issues that affect contemporary art. FALL, SPRING. [3] Rowe.

122. Digital Imaging. (Formerly Art and Art History 124) Creation of still, photo-based images using digital cameras, scanners and Photoshop software for digital output. Issues that affect contemporary art. FALL. [3] Rowe.

130. Painting. (Formerly Art and Art History 150) Technical and conceptual aspects of painting. Individual instruction based on ability and experience. Prerequisite: 102. FALL, SPRING. [3] Murphy, Porter.

140. Ceramics. (Formerly Art and Art History 165) Introduction to ceramic design and preparation of clay objects. Hand-building, wheel-throwing, ceramic sculpture, surface enrichment, glazing, and kiln-firing. FALL, SPRING. [3] DeMay.

141. Sculptural Ceramics. Expressive art forms in clay. Assembled components, surface enrichment, and firing techniques. Prerequisite: 140. SPRING. [3] DeMay.

150. Sculpture. (Formerly Art and Art History 160) Changing concepts, materials, and processes in sculpture. Individual instruction based on ability and experience. FALL. [3] Aurbach.

151. Assemblage. (Formerly Art and Art History 161) Additive processes in sculpture. Problems involving found objects, kinetic/time-based ideas, and site-specific installations. SPRING. [3] Aurbach.

160. Digital Art. (Formerly Art and Art History 125) Art made with the aid of computers. Programs and processes vary. Digital imaging, manipulation, motion, and interactivity. SPRING. [3] Hosford.

170. Multimedia. (Formerly Art and Art History 143) Relationships of video, computer graphics, new materials, electronic music, and performance. Technical processes and creative expression. FALL. [3] Hosford.

171. Video Art. (Formerly Art and Art History 144) 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] Hosford.

202. Drawing and Composition II. (Formerly Art and Art History 202) Prerequisite: 102. FALL, SPRING. [3] Murphy, Porter.

203. Drawing and Composition III. Prerequisite 102/202. FALL, SPRING [3] Murphy, Porter.

205. Life Drawing II. (Formerly Art and Art History 235a) Prerequisite: 105 or 135. SPRING. [3] Porter.

206. Life Drawing III. (Formerly Art and Art History 235b) Prerequisite: 205 or 135. SPRING. [3] Porter.

210. Printmaking II. (Formerly 208a) Prerequisite: ARTS 110 or 111. FALL, SPRING. [3] Murphy, Hosford.

211. Printmaking III. (Formerly 208b) Prerequisite: 210. FALL, SPRING. [3] Murphy, Hosford.

220. Photography II. The Zone System of pre-visualization, studio lighting, and advanced darkroom techniques. Prerequisite: 120. SPRING. [3] Rowe.

221. Alternative Photography. (Formerly Art and Art History 209) Use of non-silver emulsions on paper, fabric, and other substrates that encourage personal expression and allow for the incorporation of photographic imagery into other media. Presentations and discussions of issues that affect contemporary art. Prerequisite: 120, 121. [3] Rowe.

230. Painting II. (Formerly Art and Art History 250a) Prerequisite: 130. FALL, SPRING. [3] Murphy, Porter.

231. Painting III. (Formerly Art and Art History 250b) Prerequisite: 230. FALL, SPRING. [3] Murphy, Porter.

240. Ceramics II. (Formerly Art and Art History 265a) 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. SPRING. [3] DeMay.

241. Ceramics III. (Formerly Art and Art History 265b) See description of 240. Prerequisite: 140. SPRING. [3] DeMay.

250. Sculpture II. (Formerly Art and Art History 260) Prerequisite: 150. FALL, SPRING. [3] Aurbach.

260. Digital Art II. (Formerly Art and Art History 225) Prerequisite: 160. SPRING. [3] Hosford.

270. Multimedia II. (Formerly Art and Art History 243) Prerequisite: 170. FALL. [3] Hosford.

288. Selected Topics. May be repeated with change of content up to a total of 9 hours. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [Variable credit: 1–3 per semester, not to exceed a total of 6] Staff.

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 studio art only. SPRING. [3] Staff.

Art History (AHST)

110–111. History of Western Art. A survey of art from prehistoric times to the present. 110: ancient and medieval art. 111: Renaissance and modern art. [3–3] Folgarait, Headrick, Kirschke, Popovich, Shaneyfelt.

115, 115W. Freshman Seminar. [3] Staff.

120. Arts of Asia. (Formerly Art and Art History 200) A survey of sculpture, painting, and architecture in India, China, Japan, Korea, and Southeast Asia. The arts of each country will be studied in light of the historical, religious, philosophical, and cultural background. [3] Miller.

130. Images of Culture. (Formerly Art and Art History/Anthropology 130) The anthropology of art. Comparative study of aesthetics and the nature of beauty. Artistic creation and the role of images, myth, and ritual in various cultures. FALL. [3] Headrick.

210. Early Christian and Byzantine Art. The development of architecture, sculpture, painting, and the minor arts from the fourth through the fifteenth century. [3] (Not currently offered)

211. Medieval Art. The development of architecture, sculpture, painting, and the minor arts in Europe from the eighth through the fourteenth century. SPRING. [3] Popovich.

212. Northern Renaissance. Painting, sculpture, and graphic arts in the Low Countries, France, and Germany from the end of the fourteenth century through the Reformation. Historical, social, and religious factors are considered as well as style. [3] (Not currently offered)

214. Jewish and Islamic Art and Architecture. Architecture and its decoration, painting, and the minor arts among the Jews from circa 1200 B.C. to the early fifteenth century, and among the Moslems from the seventh through the sixteenth centuries. Emphasis on stylistic and geographic diversity. [3] (Not currently offered)

215. Formation and Power of Christian Images. Iconographic analysis of the origins and evolution of single figures and compositions: their religious and political messages in painting and sculpture of the Middle Ages from circa 300 to 1300. FALL. [3] Popovich.

218. Italian Renaissance Art to 1500. Early development of painting and sculpture through the fourteenth century and into the full Renaissance style of Italian art, as manifest in the works of Giotto, Masaccio, Donatello, and Botticelli. Emphasis is placed on the age of the Medici. FALL. [3] Mode, Shaneyfelt.

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. SPRING. [3] Mode.

220. Renaissance-Baroque Architecture. European architecture from the fifteenth century to the French Revolution with emphasis on its historical and social background. The various architectural movements—Renaissance, Baroque, and Rococo—are studied in terms of important architects and buildings, especially of Italy, France, and England. [3] (Not currently offered)

221. Baroque-Rococo Art. European painting from 1550 to the French Revolution encompassing the Mannerist, Baroque, and Rococo movements as they are manifest in the works of Caravaggio, Velasquez, Rembrandt, Watteau, Hogarth, and Tiepolo. SPRING. [3] Johns, Shaneyfelt.

222. British Art. The arts of England and related cultures, from Van Dyck and Hogarth to Blake and the Pre-Raphaelites. Social and political context, literary influences, and film treatments. FALL. [3] Mode.

223. The Highway and the City. The period 1812 to present. History of architecture, urban design, and landscape; cultural, social, and economic influences on metropolitan and regional development; sources and representations of urban and suburban life in art, literature, and film. [3] (Not currently offered)

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. FALL. [3] Johns.

230–231. Nineteenth- and Twentieth-Century European Art. A survey of painting and graphic arts, with some consideration given to social and historical factors. 230: from Neo-Classicism through Post-Impressionism; 231: from the early expressionist movements to mid-century. FALL, SPRING. [3–3] Folgarait, Kirschke.

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. SPRING. [3] Folgarait.

234. Twentieth-Century Mexican Literature, Film, and Art. The historical, social, and political dynamic as expressed in various art forms. The relation between social reality and aesthetic form. [3] (Not currently offered)

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. FALL. [3] Momplet.

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. SPRING. [3] Momplet.

239. African American Art. Foundations of African American art, eighteenth century to the present, stressing influences of African culture. Emphasis on political art of the Harlem Renaissance and the Civil Rights Movement. No credit for students who have previously completed 294: African American Art. [3] Kirschke. (Not currently offered)

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. FALL. [3] Fryd.

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. SPRING. [3] Fryd.

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] (Not currently offered)

245. Art of Pre-Columbian America. The great artistic traditions of pre-Columbian America, including the Aztec, Maya, Inca, and native North American. Styles, symbolism, and the role of art in native politics, history, and religion. SPRING. [3] Headrick.

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] Miller.

252. Arts of China. Artistic production from the Neolithic period through the Zing dynasty in relation to religious and cultural contexts. [3] Miller.

253. Arts of Japan. Artistic production from the Neolithic through Meiji periods in relation to religious and cultural contexts. [3] Miller.

254. Japanese Painting and Prints. A survey of Japanese painting from the proto-historic period to the present with an emphasis on schools, styles, and development of woodblock prints as seen in their historical, religious, and cultural context. [3] Miller. (Not currently offered)

255. Native North American Art. The art and great aesthetic traditions of the native peoples, emphasizing North America, including the Southwest, Northwest Coast, and Plains. The relationship of art to social life, myth, and religion. Changes since contact with European cultures. [3] Headrick. (Not currently offered)

256. Art of the Maya. Architecture, painting, and sculpture from 100 B.C. to artistic traditions of contemporary Maya peoples. Ritual, religion, mythology and politics. FALL. [3] Headrick. (Not currently offered)

257. Mesoamerican Art. Worldview as expressed by painting, sculpture, and architecture from 2000 B.C. through the sixteenth century. Impact of religion and politics on the cities of the Olmec, Zapotec, and Aztec as seen through their artistic traditions. SPRING. [3] Headrick.

272a–272b. Survey of Film History. A survey of the development of the motion picture and analysis of its changing aesthetic through the study of acknowledged masterpieces. 272a: the beginnings in 1895 through 1941. 272b: 1941 to the present. FALL, SPRING. [3–3] Hinton.

288. Selected Topics. May be repeated with change of content up to a total of 9 hours. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [Variable credit: 1–3 per semester, not to exceed a total of 6] Staff.

290. Directed Study. Same requirements as 289. FALL, SPRING. [1–3] Staff.

293a–293b. Internship. Under faculty supervision, students gain experience in different settings that provide a broad range of arts-related programs, at public or private institutions, including museums, and/or federal agencies. Students may take 3–6 hours in 293a, which includes background research done prior to or concurrently with a one-semester internship program, leading to submission of a research paper at the end of that semester. Normally, 6–9 hours will be taken in 293b, with a report required at the end of the internship training. A 2.90 grade point average and approval of a specific plan by the department is required, plus at least 6 hours of prior work in fine arts. 293a: Internship research: readings and critiqued assignments under faculty supervision. FALL, SPRING. [1-6] 293b: Internship training: offered only as Pass/Fail credit, not part of minimum hours for the Art and Art History major, to be taken concurrently with 293a. FALL, SPRING. [1–9]

295. Advanced Seminar in Art History. An undergraduate seminar involving advanced reading, research, and writing in a particular area of art history. May be taken no more than two times, and not twice from the same professor. Limited to juniors and seniors with preference to art history majors. FALL, SPRING. [3] Staff.

298. Honors Research. Research to be done in consultation with a member of the faculty in Art and Art History. Open only to those beginning honors work in Art and Art History. FALL, SPRING. [Variable credit: 1–6 each semester; may be repeated to a maximum of 6] Staff.

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 Art and Art History. Prerequisite: 298. FALL, SPRING. [Variable credit: 1–6 each semester; may be repeated to a total of 6] Staff.

301. The Methods of Art History. FALL. [3] Folgarait, Fryd.

310. Seminar: Problems in Asian Art. FALL. [3] Miller.

312. Seminar: Problems in Medieval Architecture. FALL. [3] Popovich.

315. Seminar: Early Renaissance Art. [3] Mode.

319. Seminar: Problems in Baroque Art. [3] Johns.

320. Seminar: British Art and Culture. SPRING. [3] Mode.

324. Seminar: Studies in Twentieth-Century Art. [3] Folgarait.

325. Seminar: Studies in American Art. [3] Fryd, Kirschke.

355. Seminar: Mesoamerican Art. SPRING. [3] Headrick.

Biological Sciences

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DIRECTOR OF UNDERGRADUATE STUDIES (MCB major) Wallace M. LeSturgeon

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Lilianna Solnica-Krezel, Laurence J. Zwiebel

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Kenneth C. Catania, Kefyn M. Catley, Brandt F. Eichman, Katherine L. Friedman,

Daniel J. Funk, Joshua T. Gamse, Andrzej M. Krezel, Manuel Leal

RESEARCH ASSISTANT PROFESSORS Jeff Rohrbough, Shin Yamazaki, Yao Xu,

Daoqi Zhang

SENIOR LECTURERS Steve J. Baskauf, A. Denise Due-Goodwin, Mark A. Woelfle

1 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 Web site: <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,b and 104a,b) and two semesters of organic chemistry and lab (Chemistry 219a,b and 220a,b). 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,b and 111a,b, are required in all majors. All Biological Sciences courses count toward the major *except* 100, 105, and 115. 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, 221, 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 must be taken; 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: 230, 238, 239, 246, 247, 257, 270. For the BioSci major, at least two lecture courses must be at a course number level of greater than 221.

Program of Concentration in Biological Sciences (BioSci)

At least 30 hours satisfying the general requirements above, and including the following:

Introductory Courses—BSCI 110a, BSCI 110b and labs (111a, 111b)

Intermediate Courses—205, 210, and one other intermediate lecture course; one intermediate laboratory course

Laboratory—One additional intermediate or upper-level laboratory course, or two semesters of directed and/or independent research (BSCI 283, 286, 296).

Seminar/Independent Studies—A minimum of 2 credit hours of 275, 282, 283, 286, or 296 is required. Only one seminar (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 Biological Sciences lecture courses must have a course number of greater than 221.

Program of Concentration in Molecular and Cellular Biology (MCB)

At least 30 hours satisfying the general requirements above, and including the following:

Introductory Courses—BSCI 110a, BSCI 110b and labs (111a, 111b)

Intermediate Courses—201, 210, 220, and either 202 or 211

Laboratory—One additional intermediate or upper-level laboratory course, or two semesters of directed and/or independent research (BSCI 283, 286, 296).

Seminar/Independent Studies—A minimum of 2 credit hours of 275, 282, 283, 286, or 296 is required. Only one seminar (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: 205, 226, 230, 240, 246, 247, 252, 256, 258, 262, 265, 266, 273, 274, 279, Honors Research (296).

For students intending to perform Honors research in the MCB major, 265 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:

Introductory Courses—BSCI 110a, BSCI 110b and labs (111a, 111b)

Intermediate Courses—205, 210, and 218 or 219 or 238; one intermediate lab course.

Laboratory—One additional intermediate or upper-level laboratory course, or two semesters of directed and/or independent research (BSCI 283, 286, 296).

Seminar/Independent Studies—A minimum of 2 credit hours of 275, 282, 283, 286, or 296 is required. Only one seminar (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, 238, 239, 246, 247, 257, 266, 270, 273, Honors Research (296); 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, 238, 239, 246, 247, 257, 270.

Minor in Biological Sciences

A minor in Biological Sciences requires a minimum of 18 hours made up as follows: (a) 8 hours of BSCI 110a,b and 111a,b; (b) 210 and one other intermediate lecture course; (c) two other Biological Sciences courses, at least one of which must be a 3 hour lecture course, excluding 282, 283, 286, and 296.

Biological Sciences 110a–110b and 111a–111b serve as prerequisites for all higher numbered courses (except 115) for students in any of the three majors or the minor offered by the department.

100. Biology Today. Broad coverage of the biological sciences presenting evolution as a 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. BSCI 100 and BSCI 105 may not both be taken for credit. Three lectures and one laboratory per week. FALL, SPRING. [4] Woelfle, Due-Goodwin.

105. Human Biology. An overview of the biology of humans with special emphasis on recent advances in genetics, reproduction, and biotechnology. The social, legal, and ethical impli-

cations of these advances will be explored. Not intended for students majoring in the Biological Sciences. Students who take 100 or 110a–110b may not receive credit for 105. SPRING. [3] Johnson.

110a–110b. Introduction to Biological Sciences. An integrative approach to the science of life from molecules to ecosystems. 110a: structure/function of macromolecules; cell structure; cell division; energy production and basic metabolism; molecular genetics; gene structure and regulation. 110b: cell signaling and hormones; physiology, development, immunology; Mendelian and population genetics; evolution and speciation; populations and ecosystems. Ordinarily accompanied by 111a–111b. Corequisite or Prerequisite: Chemistry 102a, FALL; 102b, SPRING. [3–3] Staff.

111a–111b. Biological Sciences Laboratory. Laboratory to accompany 110a–110b. Corequisite: 110a–110b. One three-hour laboratory per week. 111a, FALL; 111b, SPRING. [1–1] Baskauf.

115. Freshman Seminar.

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: Biological Sciences 110a–110b. SPRING. [3] Graham, Zwiebel.

202. Cell Biology Laboratory. One three-hour laboratory and discussion period per week. May only be taken concurrently with or following 201. SPRING. [1] Graham, Zwiebel.

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: 110a–110b. FALL. [3] Burke, Funk.

210. Principles of Genetics. Basic principles and mechanisms of inheritance discussed and related to other biological phenomena and problems. Prerequisite: 110a–110b. SPRING. [3] Friedman, Solnica-Krezel.

211. Genetics Laboratory. One three-hour laboratory and discussion period per week. May only be taken concurrently with or following 210. SPRING. [1] Woelfle.

218. Introduction to Botany. Structure and function of plants, employing a survey of anatomical and morphological systems. Three lectures and one laboratory period per week. SPRING. [4] Staff.

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: 110a–110b. SPRING. [4] Leal, Catley.

220. Biochemistry I. Structure and mechanism of action of biological molecules, proteins, nucleic acids, lipids, polysaccharides. Enzymology. Carbohydrate metabolism. Prerequisite: 110a–110b and Chemistry 220a–220b. FALL. [3] Krezel, Oeltmann.

221. Biochemistry Laboratory. Biochemical techniques; illustrations and applications of biochemical principles. Prerequisite: Chemistry 219a–219b and 220a–220b and pre- or corequisite 220. [1] (Not currently offered)

224. Biology of Insects. An introductory survey of insects, with emphasis on diversity, taxonomy, and ecology. Two lectures and two laboratory periods per week before spring

break; seven days intensive field work at Archbold Biological Station, Florida, during spring break; then individual study and final report preparation.[4] (Not currently offered)

226. Immunology. The molecular and cellular basis of immunity. Emphasis on molecular structure, the genetic origin of diversity in B-cell and T-cell receptors, antigen presentation, and the cellular interactions leading to the immune response. Tolerance, tumor and transplantation immunity, autoimmune and immunodeficiency diseases, and allergy. Prerequisite: 201 or 210. SPRING. [3] Carter.

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. Not open to students who have taken 115 Biological Clocks and Human Behavior. Prerequisite: 110a–110b. FALL. [3] McMahon.

237. Ecology Lab. One three-hour laboratory and discussion period or field trip per week. Prerequisite or Corequisite: 238. [1] (Not currently offered)

238. Ecology. Population biology, evolutionary ecology, community structure, with emphasis on species interactions, including competition, predation, and symbiosis. Prerequisite: 110a–110b. SPRING. [3] Abbot.

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: 110a–110b, 205. FALL. [3] Leal.

240. Developmental Biology. Genetic, molecular, and cellular mechanisms underlying development of eukaryotic organisms with emphasis on insects and vertebrate animals. Topics include regulation of gene expression during developmental processes, specification of embryonic polarity, generation and patterning of germ layers, organogenesis, axonal specificity, evolution of chordate body plan. Prerequisite: 201 and 210. FALL. [3] Solnica-Krezel.

242. Advanced Developmental Biology: Vertebrate Organogenesis. Cellular and molecular regulation of the morphogenetic processes that shape vertebrate tissues and organs. Emphasis on development of digestive, respiratory, hematopoietic, cardiovascular, urogenital, sensory and nervous systems. Where appropriate, correlation to invertebrate development and reference to evolutionary changes in organ structure and function. Prerequisite: 240. [3] Appel, Bader.

246. Evolutionary Genetics. Fundamentals of population and quantitative genetics. Natural selection, gene flow, genetic drift, population structure, linkage disequilibrium, and the analysis of polygenic traits. genetic map-based approaches. Special emphasis on genetics of adaptation and speciation. Prerequisite: 205 and 210. SPRING. [3] Burke.

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] (Not currently offered)

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: 110a–110b. FALL. [3] Page.

253. Laboratory in Neurobiology. Laboratory studies focusing on experimental methods in neurophysiology. Introduction to techniques for recording membrane potentials, studying synaptic transmission, and analyzing neural mechanisms involved in sensory information processing and regulation behavior. May only be taken concurrently with or following 252. Prerequisite: 111a–111b. SPRING. [1] Catania.

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: 110a–110b. FALL. [3] Catania.

256. Molecular Neurobiology. Comparative, evolutionary perspectives of molecular mechanisms underlying the development of neural circuits, the foundations of nerve cell communication, nervous system plasticity, and sensory processing, especially vision. Relation of these mechanisms to causes of human neurological diseases. Prerequisite: 110a and 110b. SPRING. [3] Broadie, McMahan.

257. Plant-Animal Interactions. Ecology and evolution of species interactions at individual, population, and community levels; coevolution; pollination biology; fruit and seed dispersal; mammal and insect herbivore and plant defense mechanisms; ant-plant and animal-fungus interactions. Prerequisite: 205. [3] (Not currently offered)

258. Vertebrate Physiology. Fundamental mechanisms of the major vertebrate physiological systems with an emphasis on humans. Special physiological adaptations of vertebrates to their environment (respiration of aquatic animals, birds, and deep diving mammals; salt balance in fresh and salt water environments; altitude adaptation). Prerequisite: 201 or 220. [4] (Not currently offered)

259. Physiology Laboratory. Laboratory to accompany 258. Experiments investigating major physiological processes (glucose-glycogen-protein metabolism, enzyme regulation during starvation; exertion, digestion, blood circulation, respiration, cold adaptation). May only be taken concurrently with, or following, 258. One three-hour laboratory per week. [1] Honegger. (Not currently offered)

262. Bimolecular Interactions. Energetics and kinetics of interactions between proteins and nucleic acids and their ligands. Topics include cooperativity, allostery, rates of binding reactions. Students will gain direct experience in computer use, but no programming is required. Prerequisite: 220 and Physics 117a–117b. One lecture and two calculation sessions per week. [3] (Not currently offered)

265. Biochemistry II. Lipid, amino acid, and nucleotide metabolism. Biochemistry of the expression and transmission of genetic information. Molecular physiology. Prerequisite: 220. SPRING. [3] Fanning, LeSturgeon.

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. FALL. [3] Friedman.

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: 110a–110b. [3] McCauley. (Not currently offered)

273. Molecular Mechanisms of Environmental Toxins. Molecular interactions of environmental toxins with specific subcellular components and biochemical basis of their toxicity. Environmental mutagens, heavy metals, synthetic estrogens and other analogs of natural substrates, oxidants, and the question of synergy. Prerequisite: 210. FALL. [3] LeStourgeon.

274. Protein Design. Protein structural motifs and their underlying physical principles. Methods of protein structural analysis, experimental and theoretical, including the use of computer graphics, database searching and analysis, and structural prediction. The design and expression of mutant, chimeric, and de novo proteins. Prerequisite: 210 and 220. [3] Krezel. (Not currently offered)

275a–275b. Undergraduate Seminar. Discussions and papers based on readings in original research journals. Specific topics listed in the *Schedule of Courses*; further information from the listed instructor. May be taken for credit more than once, but only two hours count toward the major. Prerequisite: fulfillment of the intermediate course requirements for the major. FALL, SPRING. [2–2]

279. Chemistry of the Brain. Special biochemical reactions in brain, with emphasis on human brain. Synthesis and breakdown of brain molecules and their functions in membranes, synaptic transmission, and sensory transduction. Normal brain metabolism and the changes in neurological disease. Prerequisite: 220. SPRING. [3] Wild.

280a–280b. Introduction to Research. Work in the laboratory of a member of the Biological Sciences faculty. A term paper on the research of the laboratory will be required. Prerequisite: 110a. Prerequisite or Corequisite: 110b. Consent of course coordinator and enrollment by arrangement before the end of the previous semester is required. FALL, SPRING. [1 credit only per semester; course may be repeated to a total of two credits] LeStourgeon, FALL; McCauley, SPRING, coordinators.

282. Independent Reading. Reading and discussion of research papers with a member of the faculty. Permission to enroll by arrangement before the end of the previous semester. May be taken for credit twice. Prerequisite: consent of Biological Sciences 282 coordinator. FALL, SPRING. [1] Staff; LeStourgeon, FALL; McCauley, SPRING; coordinators.

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. Prerequisite: 110a–110b, one intermediate BSCI course appropriate to the major, and consent of Biological Sciences 283 coordinator. FALL, SPRING. [Variable credit: 2–4] Staff; Stubbs, coordinator.

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. May be taken for credit more than once. Prerequisite: consent of Biological Sciences 286 coordinator, overall grade point average of *B*. FALL, SPRING. [Variable credit: 2–6] Staff; coordinator, Stubbs.

296. Honors Research. Open only to majors in honors program. May be taken for credit more than once. FALL, SPRING. [Variable credit: 4–6] Staff; coordinator, Stubbs.

Chemistry

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LECTURERS Tara D. Todd, Joel A. Krauser, Adrienne Woodside

1 THE Department of Chemistry at Vanderbilt offers a wide range of courses from the introductory level to the doctoral level. Undergraduate courses are designed for students planning careers in chemistry, medicine, business, and other professions, and for students taking chemistry as part of the foundation for another discipline. Faculty members in the department serve as both scientists and teachers, bringing to the classroom the results and excitement of their research. Because of this dual emphasis, students are made aware of the latest developments in the field. Undergraduate majors are encouraged to participate in faculty research projects and often receive their own laboratory space for study and research. All courses are taught by full-time faculty members. Graduate students assist in grading and in the instruction of undergraduate laboratories.

Programs of Concentration in Chemistry

Three programs of concentration are available. Program A permits graduates to take positions of lesser responsibility as chemists and serves as a background for the teaching of chemistry in secondary schools or for the study of medicine, law, business, etc. Program B, for superior students, resembles Program C but requires independent study and research. Program C is intended for those who plan to do graduate work in chemistry or to make chemistry their profession. It meets the minimum standards of

the American Chemical Society. Chemistry courses taken under the three programs are as follows:

A: BASIC	B: HONORS*		C: PROFESSIONAL		
102a–b and 104a–b or AP Credit	4	102a–b and 104a–b	0	102a–b and 104a–b	0
220a–b or 218a–b, and 219a–b	8	220a–b or 218a–b, and 219a–b	8	220a–b or 218a–b, and 219a–b	8
210, 212A	4	210	4	210	4
230 or 231	3	230, 236	4	221 (or 204 and 282a–b)	3
236	1	231, 237	5	230, 236	4
Additional 200-level courses	7	203	3	231, 237	5
		292a–b–c	6	203	3
		Graduate courses or 291a–b	2	211	4
				Advanced chemistry	6
Total hours	27	Total hours	32	Total hours	37

* In order to be certified by the American Chemical Society, an Honors candidate must also complete Chemistry 211 and fulfill requirements in mathematics and physics. Graduate courses are those that may be taken for credit by a graduate student in chemistry.

Program A. Basic. In the first year, students in Program A should complete Chemistry 102a–102b and 104a–104b, or 218a–218b and 219a–219b, foreign language (recommended but not required), and Math 150a–150b or a higher-level calculus sequence; in the second year 220a–220b and 219a–219b; in the third year 210 and 212a, 230, 236; and in the third and fourth years 7 additional hours of chemistry at the 200- or 300-level. Up to three hours of 282a–282b may be counted toward the 27 hours. Biological Sciences 220 (Biochemistry I) is acceptable as additional chemistry in Program A. Credit is given for Chemistry 102b/104b but not for 102a/104a.

Mathematics 150a–150b is the minimum mathematics requirement for Chemistry A majors.

Program B. Honors. Near the end of their sophomore year, students with a minimum grade point average of 3.000 in all courses and of 3.000 in chemistry may apply for election to the honors program. Before the junior year the student should have completed 210 and 212a, 220a–220b and 219a–219b, and the physics and mathematics prerequisite to 230. In the junior year the student takes 230, 231, 236, 237, and 292a (spring). In the senior year, the student takes 203 and 292b–292c. The student must complete 11 hours in the honors program. Chemistry 292a–292b–292c counts as 6 of these hours; the 5 remaining hours are satisfied by readings under the student's research adviser during the junior year (291a–291b) or by 203 plus one graduate course (normally in the senior year). Honors candidates will be expected to take the Graduate Record Examination in Chemistry during the fall semester of their senior year. The student must present a thesis on the research done under 292a–292b–292c and pass an oral examination on it. Additional information may be found in the chapter on Special Programs in the College.

Program C. Professional. A suggested pattern for students in Program C, preparing for a profession in chemistry, is as follows: First year: Chemistry 102a–102b and 104a–104b or 218a–218b and 219a–219b and Mathematics 155a–155b (Mathematics 150a–150b and 170a–170b is a less highly recommended but satisfactory option). Second year: 210 and 212a, 220a–220b and 219a–219b, Mathematics 175, and Physics 117a–117b or 121a–121b (one of these physics sequences is required for the Program C major). Third year: 221 (or 204 and 282a–282b), 230, 231, 236, 237. Fourth year: 203, 211 and 212b, and advanced chemistry. Students are encouraged to include Mathematics 218 or 247–248 in their programs. Mathematics 155a–155b and 175 or 150a–150b and 170a–170b are the minimum requirements for Program C majors.

“Advanced chemistry” may consist of: (a) 202, 207, 220c, 223, 224, 226, 232, 233, 234, 282a–282b, or 300-level courses, or (b) appropriate courses in mathematics above 194, computer science above 200, or statistics above 218, or (c) 200-level physics courses that require calculus, or (d) Biological Sciences 220, or (e) Chemical Engineering 223 and 225, or (f) Earth and Environmental Sciences 260. At least 3 hours should be in a course with a Biochemistry component (e.g., Chemistry 202, 220c, 224, 226, 336, Biological Sciences 220).

Minor in Chemistry

The minor in chemistry requires 18 hours of course work, including 102b and 104b or AP credit, General Chemistry (4 hours), and 14 hours selected from any of the 3- or 4-hour courses acceptable for the major in Chemistry.

Biochemistry

In addition to Biochemistry I (Biological Sciences 220), the following course in biochemistry is available to selected undergraduates majoring in chemistry who obtain permission from (a) the director of the undergraduate program, (b) the chair of the Department of Biochemistry, and (c) the Graduate School:

331. The Role of Carbohydrate Structures in Normal and Diseased States [2].

A complete course description can be found in the Graduate School catalog.

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.

Introductory Courses

Introductory chemistry is offered in three different year-long courses, each with its own laboratory. Only one of these year-long courses may be

taken for credit. Successful completion of the first semester of any sequence is a prerequisite for the second semester of that sequence.

1. *Chemistry 101a–101b.* Intended for liberal arts students who are not planning to take any additional chemistry courses. It treats chemistry in a non-mathematical fashion, with some historical and philosophical features. Not for science and engineering students.

2. *Chemistry 102a–102b.* Designed for engineering, science, and pre-medical students. This course, which must be taken simultaneously with 104a–104b and 106a–106b, 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 CPLE requirements.

3. *Chemistry 218a–218b.* Designed for students who have a strong background in chemistry with a 4 or 5 advanced placement test score or approval of the director of undergraduate studies. Students taking the 218a–218b sequence should also register for the organic laboratory courses 219a–219b. This course covers the same material as Chemistry 220a–220b but is limited to freshmen. Chemistry 218a–218b satisfies all Chemistry 220a–220b prerequisites needed for advanced chemistry courses. Students who complete 218a–218b are ready to take courses in chemistry traditionally taken during the third year of the major.

101a–101b. Introductory Chemistry. For students who are not planning to take additional chemistry. Does not serve as a prerequisite for advanced courses in chemistry without approval of the director of undergraduate studies. 101a is prerequisite to 101b. Three hours of lecture and one three-hour laboratory period each week. [4–4] Todd.

102a–102b. General Chemistry. General principles of chemistry for science and engineering students. Composition and structure of matter, chemical reactions, bonding, solution chemistry, kinetics, thermodynamics, equilibrium, acids and bases, electrochemistry, coordination compounds. Ordinarily accompanied by 104a–104b. Corequisite: 106a–106b, Mathematics 150a–150b or equivalent. Three lectures per week and a recitation period (106a–106b). [3–3] Staff.

104a–104b. General Chemistry Laboratory. Laboratory to accompany 102a–102b. Corequisite: 102a–102b. One three-hour laboratory per week. [1–1] Staff.

106a–106b. General Chemistry Recitation. The recitation portion of the Chemistry 102a–102b course. One one-hour period per week. All students registering for Chemistry 102a–102b must concurrently register for Chemistry 106a–106b. [0–0]

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. Non-metallic elements including selenium, iodine, chlorine, and phosphorus. Prerequisite: 220a–220b. SPRING. [3] Wright.

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: organic and physical chemistry. FALL. [3] Lukehart.

204. Inorganic Preparations. Synthesis and characterization of inorganic compounds or materials; one laboratory per week. Pre- or corequisite: 203. SPRING. [1] Goodman.

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, 220a–220b. [3] Lukehart. (Offered 2005/2006)

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. Must be accompanied by 212a. FALL. [3] Cliffl.

211. Instrumental Analytical Chemistry. Chemical and physical principles of modern analytical chemistry instrumentation. Credit allowed for chemistry graduate students having deficiency. Prerequisite: 210, 220a–220b, and 230. Must be accompanied by 212b for undergraduates. FALL. [3] Hercules.

212a–212b. Analytical Chemistry Laboratory. Laboratory to accompany Chemistry 210 (212a) and 211 (212b). No credit for graduate students in chemistry. Corequisite: 210–211. One four-hour laboratory per week. [1–1] Krauser.

218a–218b. Organic Chemistry for Advanced Placement Students. Fundamental types of organic compounds, their nomenclature, classification, preparations, reactions, and general application. Prerequisite: enrollment limited to first-year students with advanced placement chemistry scores of 4 or 5, or the approval of the director of undergraduate studies. Ordinarily accompanied by 219a–219b. Equivalent to 220. [3–3] Bachmann, Lowe.

219a–219b. Organic Chemistry Laboratory. Laboratory to accompany 220a–220b. Corequisite: 220a–220b. One four-hour laboratory per week. [1–1] List.

220a–220b. Organic Chemistry. Fundamental types of organic compounds, their nomenclature, classification, preparations, reactions and general application. Prerequisite: 102a–102b, 103a–103b, 104a–104b. No credit for graduate students in chemistry. Ordinarily accompanied by 219a–219b. [3–3] Hess, Lowe, M. Sulikowski.

220c. Organic Chemistry Structure and Mechanism. Introduction to advanced topics in organic chemistry and applications to biologically related sciences. Stereochemistry and conformational analysis, mechanisms of organic, bioorganic and enzymatic reactions, linear free-energy relationships, reactive intermediates. FALL. [3] Kaszynski.

221. Laboratory Techniques in Organic Chemistry. Advanced work in organic preparations, new synthetic techniques, and modern organic analytical methods, including infrared and nuclear magnetic resonance. Prerequisite: 220b. One lecture and two laboratory periods per week. [3] (Not currently offered)

222. Physical Organic Chemistry. Structure and bonding in organic molecules. Reactive intermediates and organic reaction mechanisms. Prerequisite: 220b, 231. SPRING. [3] Kaszynski.

223. Advanced Organic Reactions. A comprehensive study of the synthesis and behavior of organic compounds based on electronic theory. Prerequisite: 220a–220b and 221, 230, 231, 236, and 237, or special consent of instructor. Three lectures per week. SPRING. [3] G. Sulikowski.

224. Bioorganic Chemistry. Essential metabolites including vitamins, steroids, peptides, and nucleotides. Consideration of phosphate esters and the synthesis of oligodeoxynucleotides. Prerequisite: 220a–220b. Three lectures per week. FALL. [3] Rizzo.

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: 220b. SPRING. [3] Bachmann.

226. Medicinal Chemistry. Drug design and development; drug interactions with receptors, enzymes, and DNA; selected therapeutic areas. Some organic synthesis. Prerequisite: 220a–220b and 219a–219b. FALL. [3] Lybrand.

230. Physical Chemistry I. Chemical kinetics and principles of quantum chemistry applied to molecular structure, bonding, and spectroscopy. Prerequisite: Math 150a–150b or Math 155a–155b and Physics 116a–116b or Physics 117a–117b. No credit for graduate students in chemistry. FALL. [3] Rosenthal.

231. Physical Chemistry II. Chemical thermodynamics and equilibrium, their statistical foundation, and applications to chemical phenomena. Prerequisite: Math 150a–150b or Math 155a–155b and Physics 116a–116b or Physics 117a–117b. No credit for graduate students in chemistry. SPRING. [3] Polavarapu.

232. Quantum Chemistry. Limits of classical mechanics at the atomic and molecular level; the postulates of quantum mechanics applied to problems in one, two, and three dimensions; perturbation and other methods. Prerequisite: 231 or equivalent. FALL. [3] Stone.

233. Molecular Modeling Methods. Introduction to theory and practice of computer simulation studies of molecules with emphasis on applications to biological molecules and complexes. Background theory, implementation details, capabilities and practical limitations. Prerequisite: 231. Three lectures and one three-hour laboratory per week. SPRING. [4] Lybrand.

234. Spectroscopy. Experimental and theoretical aspects of spectroscopy. Energy levels, selection rules, and spectral transitions as related to atomic and molecular structure. Design of contemporary magnetic resonance and optical spectroscopy measurements. Prerequisite: 231. SPRING. [3] Stone.

236. Physical Chemistry Laboratory. One three-hour laboratory per week. Experiments in chemical thermodynamics, chemical equilibrium, and chemical kinetics. No credit for graduate students in chemistry. FALL. [1] Tellinghuisen.

237. Experimental Spectroscopy. Experiments in ultraviolet, visible, infrared, Raman, and magnetic resonance spectroscopy, with application to lasers, photochemistry, and kinetics. No credit for graduate students in chemistry. One three-hour laboratory and one lecture per week. Prerequisite: 230 and 236. SPRING. [2] Tellinghuisen.

250. Chemical Literature. Assigned readings and problems in the nature and use of the chemical literature. Prerequisite: one year of organic chemistry. SPRING. [1] K. Porter.

282a–282b. Undergraduate Research. Open to students who have completed at least 8 hours of chemistry, upon request to the director of undergraduate studies, with consent of a faculty member who will sponsor the research. Prerequisite: a minimum grade point average in chemistry of 2.7. May be repeated any number of times depending on variation of topic. FALL, SPRING. [Variable credit: 1–3 each semester] Staff.

291a–291b. Readings for Honors. Open only to students in Honors program. 291a: general reading supervised by research adviser. 291b: continuation, with emphasis on research planned. FALL, SPRING. [2–2] Staff.

292a–292b–292c. Honors Research. Open only to students in Honors program. Original research supervised by research adviser, to be reported in thesis form with oral examination thereon. FALL, SPRING. [2–2–2] Staff.

- 304. **Special Topics in Inorganic Chemistry.** [3]
- 306. **Physical Methods in Inorganic Chemistry.** [3]
- 311. **Advanced Analytical Chemistry.** [3]
- 312. **Electrochemistry: Theory and Analysis.** [3]
- 314a. **Special Topics in Analytical Chemistry.** [3]
- 315. **Separation Methods: A Practical Approach.** [3]
- 330. **Advanced Quantum Chemistry.** [3]
- 331. **Statistical Thermodynamics.** [3]
- 335. **Thermodynamics and Kinetics of Inorganic and Organic Materials.** [3]
- 336. **Biochemical Toxicology and Carcinogenesis.** [3]
- 340. **Applications of Group Theory.** [3]
- 350. **Materials Chemistry.** [3]

Chinese

SENIOR LECTURER Xianmin Liu

LECTURER Qing Wei

1 COURSES in Chinese may be taken on an elective basis. Students interested in an interdisciplinary major in East Asian Studies may consult the director of the program about the role of Chinese in such a major.

201–202. Elementary Chinese. Introduction to Modern Chinese pronunciation, grammar, conversation, reading, and writing. [5–5] Liu, Wei.

214–216. Intermediate Chinese. Language training in oral and written Chinese. Prerequisite: 201–202. [5–5] Liu, Wei.

231. Calligraphy. Basic skills of writing standard script *kaishu*. Basic aesthetic of Chinese calligraphy. No Chinese language background necessary. [1] Liu.

241–242. Advanced Chinese. Readings in Chinese culture to enhance proficiency in oral and written Chinese. Prerequisite: 214–216. [3–3] Liu.

251–252. Intensive Readings in Chinese. Readings in selected Chinese newspapers, literary and academic works to promote reading and writing competence. Prerequisite: 241–242. [3–3] Liu.

289a–289b. 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 curriculum. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 12 over a four-semester period] Liu.

Classical Studies

CHAIR Susan Ford Wiltshire

DIRECTOR OF UNDERGRADUATE STUDIES Barbara Tsakirgis

DIRECTOR OF GRADUATE STUDIES F. Carter Philips

PROFESSORS Robert Drews, Jack M. Sasson, Henry A. Teloh, Susan Ford Wiltshire

ASSOCIATE PROFESSORS Kathy L. Gaca, Thomas A. J. McGinn, F. Carter Philips,
Barbara Tsakirgis

MELLON ASSISTANT PROFESSOR Barbara Weinlich

SENIOR LECTURER Daniel P. Solomon

1 CLASSICAL studies have always been the heart of a liberal education and offer the student unmatched perspectives within which to understand our own time. They show how our oldest beliefs and institutions came into being, and bring to life systems of values both different from and similar to our own. Courses are offered in the history, religion, art, philosophy, social problems, 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 civilization to the Christianization of Europe and the dawn of the Middle Ages.

Three major programs are offered. Students majoring in classics or ancient Mediterranean studies may take much of their work in courses on antiquity that require no knowledge of Greek or Latin. Students majoring in classical languages take their course work in Greek or Latin. Majors 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.

Philosophy 210 and Philosophy 218 may be counted toward concentration in classics and ancient Mediterranean studies as appropriate as well as toward a minor in classics.

Program of Concentration in Classical Languages

Students take 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, or Latin courses, at least 6 hours of which must be in Greek courses numbered above 204 or

in Latin courses numbered above 104. Only one of the elementary language sequences (*either* Greek 201–202 *or* Latin 100 *or* 101–102) may be applied toward the 30-hour requirement.

Program of Concentration in Ancient Mediterranean Studies

Students take 30 hours of course work. All departmental courses are eligible, although no more than 9 hours may be taken at the 100 level. The 30 hours include at least 6 and no more than 12 hours of course work on ancient Judaism and Christianity offered in the Department of Religious Studies (the eligible courses are RLST 208, 209, 211, 212, 213, 215, 221, 225, 226, and 227). Students must complete the elementary sequence in one of the ancient languages offered in the department: Greek 201–202; Latin 100; Latin 101–102; or Akkadian (Classics 231–232). By special arrangement, Biblical Hebrew can also satisfy the ancient language requirement.

Honors Program in Classics and in Classical Languages

Admission requirements are: completion of junior year and completion of at least six hours of work in advanced Greek or Latin courses (above Greek 204 or Latin 104), and an overall GPA of 3.00, with 3.25 in courses within the department (including hours earned at the I.C.C.S. 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 twelve hours of work beyond the intermediate level in Latin and/or Greek for Honors in Classics, and eighteen hours for Honors in Classical Languages.
2. Write a senior thesis, and defend it before the department, for either three or six hours credit. Candidates choosing the three-hour option for the thesis must complete one of the department's graduate seminars.
3. For Honors in Classical Languages, demonstrate competence in the history of either Greek or Latin literature, by satisfactory performance on a written and oral examination. For Honors in Classics, demonstrate competence in either Greek history and archaeology or Roman history and archaeology. This competence can be demonstrated in several ways: *B+* work at the ICCS in Rome, *B+* work in two of the department's pertinent classics courses (204 or 205 and 208 or 209; 206 and 212 or 213), or satisfactory performance on a written and oral examination.

Minor in Classics

Students who want a minor in classics may tailor their program according to their needs; but they are required to study Greek or Latin through the intermediate level and to complete an additional 15 hours.

Requirements for the minor are as follows:

1. Either Latin 104 or Greek 204 or equivalent*
2. Five courses from among the following, of which at least three must be at the 200 level:
 - a. *Language and literature*:
Latin 201, 202, 205, 206, 215, 220, 260, 268
Greek 212
 - b. *Civilization*: Classics 130, 146, 222
 - c. *History*: Classics 208, 209, 212, 213, 224
 - d. *Art and Archaeology*: Classics 203, 204, 205, 206, 211
 - e. *Mythology, Law, and Philosophy*: Classics 150, 160
Philosophy 210

*Equivalence is demonstrated by taking a higher-level language course.

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.

Greek

201. Beginning Greek I. The elements of classical Greek. Reading of simplified texts from authors of the fifth and fourth centuries B.C. FALL. [4] Philips.

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. Prerequisite: 201 or departmental placement. SPRING. [4] Philips.

203. Intermediate Greek I: Classical and Koiné Greek. Review of Greek grammar, and reading from classical and biblical texts. Prerequisite: 202. FALL. [3] Gaca.

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. SPRING. [3] Weinlich.

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: 204. [3] (Offered 2005/2006)

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] Philips. (Offered 2005/2006)

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. FALL. [3] Gaca.

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] Philips. (Offered 2005/06)

240. The Gospels in Greek. Matthew and selections from the other Gospels. Prerequisite: 203 or departmental placement. [3] (Not currently offered)

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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6]

313. Seminar in Classical Greek Prose. [3] (Offered 2005/2006)

314. Seminar in Classical Greek Poetry. [3] (Offered 2005/2006)

320. Seminar in Early Greek Poetry. SPRING. [3] Philips.

Latin

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. FALL. [5] Solomon.

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. FALL. [4] Staff.

102. Beginning Latin II. Continuation of I, and transition to literary Latin. Emphasis on the comprehension of texts. Prerequisite: 101 or departmental placement. SPRING. [4] Solomon.

103. Intermediate Latin I. Review of Latin grammar and selected reading from major Latin authors. Prerequisite: 100 or 102 or departmental placement. FALL. [3] Solomon, Weinlich.

104. Intermediate Latin II. Selected reading from the major Latin poets. Prerequisite: 103 or departmental placement. SPRING. [3] Solomon.

201. Catullus and Horace. Reading and interpretation of the *Carmina* of Catullus and the *Odes* of Horace. Prerequisite: 104 or departmental placement. [3] (Offered 2005/2006)

202. Ovid. Reading and interpretation of selections from the *Metamorphoses* or other works of Ovid. Prerequisite: 104 or departmental placement. [3] (Offered 2005/2006)

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 or departmental placement. [3] (Offered 2005/2006)

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, and philosophical works. Prerequisite: 104 or departmental placement. FALL. [3] Wiltshire.

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 or departmental placement. [3] McGinn. (Offered 2005/2006)

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 or departmental placement. [3] (Offered 2005/2006)

220. Vergil: *The Aeneid*. An intensive study of the entire poem, in the context of the epic tradition. Prerequisite: 104 or departmental placement. [3] (Offered 2005/2006)

260. Early Christian Writers. Selections from the writings of Latin Christians, from the account of Perpetua's martyrdom to the *Confessions* of Augustine. Prerequisite: 3 hours above 104. [3] (Offered 2005/2006)

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: 3 hours above 104. [3] (Offered 2005/2006)

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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6]

313. Seminar in Classical Latin Prose. FALL. [3] McGinn.

314. Seminar in Classical Latin Poetry. SPRING. [3] Wiltshire.

Classics

Courses below the 300 level require no knowledge of either Greek or Latin.

115, 115W. Freshman Seminar. [3]

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. FALL. [3] Philips.

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. FALL, SPRING. [3] Weinlich, Solomon.

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. FALL. [3] Weinlich.

160. Roman Law. Emphasis on the interaction of a system of law with social needs and expectations, on thinking and arguing about law, and on evaluation of law's social inadequacy. [3] McGinn. (Offered 2005/2006)

171. Ancient Greek Medicine and its Legacy. Ancient Greek medical knowledge, practice, and cultural values; the Hippocratic tradition and its influence. Linguistic techniques used in the study of scientific terms. The Classical heritage of modern medicine; the language and values associated with healing. SPRING. [3] Philips.

203. Aegean Art and Archaeology of the Bronze Age. The art and archaeology of the major cultures around the Aegean Sea between 3000 and 1000 B.C.: Minoan, Helladic or Mycenaean of the Greek mainland, Cycladic and those of Anatolia. No credit for students who have completed 223. [3] Tsakirgis. (Offered 2005/2006)

204. Archaic and Classical Greek Art and Architecture, 1000 to 400 B.C. Sculpture, vase painting, architecture, and the minor arts from about 1000 B.C. to the late fifth century B.C. Formal and stylistic developments in relation to changing cultural background. No credit for students who have completed 227. SPRING. [3] Tsakirgis.

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. A focus on those media (wall painting and mosaic) that develop significantly in this period. [3] Tsakirgis. (Offered 2005/2006)

206. Roman Art and Architecture. Sculpture, architecture, and painting from the tenth century B.C. to the early fourth century A.D. Daily life of the Romans as seen in the towns of Pompeii and Herculaneum. No credit for students who have completed 228. SPRING. [3] Tsakirgis.

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. FALL. [3] Drews.

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. FALL. [3] Drews.

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] Drews. (Offered 2005/2006)

211. The Greek City. The example of ancient Athens. The stoa, the theater, the house, and fortifications. Institutions such as the courts, the public assembly, and the family. Literary, historical, archaeological, and philosophical sources. [3] Tsakirgis. (Offered 2005/2006)

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. No credit for students who have had the former 209 [History of Rome]. [3] Drews. (Offered 2005/2006)

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. No credit for students who have had the former 209 [History of Rome]. SPRING. [3] McGinn.

217. 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. FALL. [3] Tsakirgis.

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. FALL. [3] McGinn.

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. SPRING. [3] Wiltshire.

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. SPRING. [3] Drews.

231–232. 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). [3–3] Sasson. (Not currently offered)

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] Sasson. (Not currently offered)

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 Thutmose III, Suppiluliumas, Ramses II, and the spiritually influential Akehnaten. [3] Sasson. (Not currently offered)

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. Open only to students who have completed either Greek 204 or Latin 104. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6]

299a–299b. Senior Honors Thesis. Open only to seniors in the departmental honors program. FALL, SPRING. [3–3]

305. Seminar in Classical Art and Architecture. FALL. [3] Tsakirgis.

398. Independent Study. [Variable credit: 1–3]

Communication of Science and Technology

DIRECTOR David J. Ernst

Affiliated Faculty

PROFESSORS Jay Clayton (English), David J. Ernst (Physics and Astronomy);
Richard F. Haglund Jr. (Physics and Astronomy), David M. Hercules (Chemistry),
Kassian Kovalcheck (Communication Studies), Joseph S. Lappin (Psychology),
Gerald J. Stubbs (Biological Sciences), Jeffrey D. Schall (Psychology),
Robert E. Stammer (Engineering Science)

RESEARCH PROFESSOR C. Richard Chappell (Physics and Astronomy)

ASSOCIATE PROFESSOR David A. Weintraub (Physics and Astronomy)

SENIOR LECTURER Jonathan M. Gilligan (Earth and Environmental Sciences)

1 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 J. Ernst, 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 48 hours. In addition, all students are strongly encouraged, but not required, to participate in an internship program that will not provide major hours but will contribute to graduation credit.

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 Courses (15 hours)

Communication Studies 237 (Communication of Science, Engineering, and Technology)

Either English 120W (Intermediate Composition) or 200 (Intermediate Nonfiction Writing) or 201 (Advanced Nonfiction Writing)

Either Communication Studies 201 (Persuasion) or 204 (Organizational and Managerial Communication)

Materials Science and Engineering 150 (Materials Science I)

Either Mathematics 180 (Fundamentals of Probability and Statistics) or Mathematics 218 (Introduction to Mathematical Statistics) or Economics 150 (Economic Statistics)

Natural Science (9 hours)

Two courses from one discipline and one from a different discipline: Biological Sciences 201 (Intro to Cell Biology), 205 (Evolution), 210 (Principles of Genetics), 218 (Intro to Botany), 219 (Intro to Zoology), 220 (Biochemistry I), 238 (Ecology); Chemistry 210 (Intro to Analytical Chemistry), 211 (Instrumental Analytical Chemistry), 220a,b (Organic Chemistry), 226 (Medicinal Chemistry); Earth and Environmental Sciences 220 (Life through Time), 225 (Earth Materials), 250 (Soil and Environment); Physics 221 (Classical and Modern Optics), 224 (Physical Analysis of Biological Systems), 225a,b (Intro to Quantum Physics and Applications), 228 (Physics of Medical Imaging);

Astronomy 201 (Intro to Astronomy: Solar System), 253 (Galactic Astrophysics) — any combination of physics and/or astronomy courses counts toward a single discipline; Psychology 201 (Neuroscience), 214 (Perception), 216 (Movement), 226 (Thinking and Reasoning), 232 (Mind and Brain), 235 (Biological Basis of Mental Disorders), 236 (Visual System), 269 (Developmental Neuroscience), 272 (Structure and Function of Cerebral Cortex), 277 (Brain Damage and Cognition), 279 (Chemistry of Brain)

Engineering (9 hours)

Engineering Science 159 (Engineering Failure: Dark Side of Technology) or 190 (Evolution of Modern Technology); Biomedical Engineering 251 (Systems Physiology); Civil and Environmental Engineering 225 (Transportation Systems Engineering), 226 (Introduction to Environmental Engineering), 227 (Introduction to Water Resources Engineering), 230 (Introduction to Structural Analysis and Design); Electrical Engineering and Computer Engineering 112 (Electrical Engineering Science); Management of Technology 150 (Dynamics of Change: Impacts of Technology); 216 (Engineering Economy), 265 (Environmental Risk Management), 275 (Technology Assessment and Forecasting)

Selected courses (15 hours)

Five courses from those listed below or additional courses taken from the above Science or Engineering lists with a minimum of one from Area I, a minimum of two from Area II, and a minimum of one from Area III.

Area I: Communication Studies 210 (Rhetoric and Civic Life), 220, 221 (Rhetoric of American Experience 1640–1865, 1865–present), 222 (Rhetorical Criticism), 241 (Rhetoric of Mass Media)

Area II: English 243 (Literature, Science, and Technology). English 243 may be repeated once (for a total of up to 6 credits), as long as the specific topics for the course are different each time it is taken. The topic for each offering of the course will be indicated in the official course schedule. Other courses in English that, due to their specific topics, are appropriate for the CST program during a particular semester will be so designated in the course schedule and on the CST Web site. Students should consult the CST adviser or the English department for planned offerings.

Area III: Astronomy 203 (Theories of the Universe); Communication Studies 223 (Values in Modern Communication), 241 (Rhetoric of Mass Media); History 204 (History of Medicine); Economics 226 (Economic History of the U.S.); Earth and Environmental Sciences 205 (Science, Risk, and Government Policy); Political Science 242 (Political Communication), 253 (Ethics and Public Policy), 255 (Public Policy Problems); Psychology 250 (Control of Human Behavior)

Internships

Although not included in the required hours for the major, an internship sequence is very strongly recommended.

Internship: Interdisciplinary Studies 280a,b,c (1 hour each). The internship program will involve work both on campus and in the national arena in such places as NASA, the Discovery Channel, National Institutes of Health, CNN, and the American Chemical Society. Credit will be given for these internships through Interdisciplinary Studies; they must be taken as P/F hours, and do not count toward the major.

Minor in Communication of Science and Technology

The minor in Communication of Science and Technology consists of a minimum of 24 hours distributed as follows:

Required courses: (9 hours)

Communication Studies 237 (Communication of Science, Engineering, and Technology)

Either English 120W (Intermediate Composition) or 200 (Intermediate Nonfiction Writing) or 201 (Advanced Nonfiction Writing)

Either Communication Studies 201 (Persuasion) or 204 (Organizational and Managerial Communication)

Selected Courses: (15 hours)

The student must take

1. two courses from the Natural Science list for the major (see above);
2. a total of two courses from the Engineering list for the major (see above); or Materials Science and Engineering 150 (Materials Science I) and one course from the Engineering list for the major (see above);
3. one course from any of the courses listed above for the major.

No more than two of the selected courses can be taken in any one department.

Communication Studies and Theatre

CHAIR Kassian A. Kovalcheck Jr.

DIRECTOR OF UNDERGRADUATE STUDIES, COMMUNICATION STUDIES John M. Sloop

DIRECTOR OF UNDERGRADUATE STUDIES, THEATRE Jon W. Hallquist

PROFESSORS EMERITI Robert A. Baldwin, Randall M. Fisher, Cecil D. Jones Jr.,

Joseph E. Wright

ASSOCIATE PROFESSORS Jon W. Hallquist, Terry W. Hallquist, Kassian A. Kovalcheck Jr.,

John M. Sloop

ASSISTANT PROFESSORS Lynn E. Clarke, Anne T. Demo, Phillip Franck,

Charles E. Morris, Jeffrey Ullom, Bradford Vivian

SENIOR LECTURERS William M. Akers, John H. English, Carole Freeman Kenner,

M. L. Sandoz, Alexandra Sargent

LECTURER Nate Otto

1 THE Department of Communication Studies and Theatre offers a major in communication studies and a major in theatre. The communication studies major includes courses in such areas as rhetoric, argumentation and debate, communication theory, 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.

The theatre program includes courses in dramatic literature, theatre history and criticism, and the practice of theatre art—including acting, directing, and theatre design and technology.

Vanderbilt University Theatre presents four major productions and several one-act plays each year. All Vanderbilt students have the opportunity to audition for major roles and participate in technical assignments.

Minor programs are also available in both communication studies and theatre.

Program of Concentration in Communication

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. Communication Studies 280a,b,c cannot be included as part of the 24 hour minimum. The requirements and options for the major are as follows.

1. Communication Studies 100, Fundamentals of Public Speaking (required)

2. At least one of the following courses in performance:

- Communication Studies 200 Argumentation and Debate
- Communication Studies 201 Persuasion
- Communication Studies 202 Small Group Communication
- Communication Studies 204 Organizational and Managerial Communication

3. At least three of the following courses in criticism and theory:

- Communication Studies 210 Rhetoric and Civic Life
- Communication Studies 220 Rhetoric of the American Experience: 1640–1865
- Communication Studies 221 Rhetoric of the American Experience: 1865 to the Present
- Communication Studies 222 Rhetorical Criticism
- Communication Studies 241 Rhetoric of Mass Media
- Communication Studies 257 Contemporary Rhetorical Theory

4. At least three of the following courses in applications and analysis:

- Communication Studies 101 Interpersonal Communication
- Communication Studies 115W Freshman Seminar
- Communication Studies 223 Values in Modern Communication
- Communication Studies 224 Rhetoric of Social Movements
- Communication Studies 228 Rhetoric and Public Memory
- Communication Studies 237 Communication of Science, Engineering, and Technology
- Communication Studies 240 Freedom of Speech
- Communication Studies 242 Communication, Culture, and Consciousness
- Communication Studies 254 Methods of Rhetorical Analysis

These courses may also be available if you have met the requirements and have the consent of the instructor:

- Communication Studies 289 Independent Study in Communication
- Communication Studies 294 Special Topics in Communication
- Communication Studies 290 Directed Readings
- Communication Studies 295–296 Seminars in Selected Topics

The remainder of the 36 hours may be selected from the courses listed above or from the following:

- Communication Studies 280a,b,c Internship
- English 120 Intermediate Composition
- English 200 Intermediate Non-Fiction Writing
- English 201 Advanced Non-Fiction Writing
- MGR1 190 Principles of Marketing
- Philosophy 102 General Logic
- Philosophy 202 Formal Logic
- Philosophy 246 Philosophy of Language

Political Science 241 American Public Opinion and Behavior
Political Science 242 Political Communication
Psychology 222 Learning and Memory
Psychology 225 Cognitive Psychology
Psychology 231 Social Psychology
Psychology 250 Control of Human Behavior
Psychology 266 Interpersonal and Intergroup Relations
Sociology 248 Popular Culture Dynamics
Sociology 249 American Social Movements

Minor in Communication Studies

A minor in communication studies requires completion of 15 hours from the following requirements and options in communication studies courses:

Required: Either 210 or 222.

Any three of the following: 220, 221, 223, 224, 225, 228, 235, 240, 241, 242.

One of the following: 200, 201, 204.

Program of Concentration in Theatre

Students majoring in theatre are required to complete a minimum of 33 hours in courses concerned exclusively with dramatic literature and the theatre. Required courses are 100 or 115W, 110, 219, 230, and 232; two courses chosen from 212, 213, 214; three courses chosen from 201, 202, 203, and 204.

Honors in Theatre

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 High 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 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 or 115W and 232 are required in each option, plus courses from the following lists:

Dramatic Literature/Theatre History: Choose four from 201, 202, 203, 204, 205, 289.

Acting/Directing: Choose four from 219, 220, 223, 230, 3 hours of 221 credit, 289.

Design/Technology: 110 required; choose two from 212, 213, 214.

Communication Studies

100. Fundamentals of Public Speaking. Theory and practice in speaking before an audience. Problems of preparation, content, organization, language, and delivery are treated. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Kenner.

115W. Freshman Seminar. [3]

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. FALL. [3] Sandoz.

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. FALL, SPRING. [3] English, Kovalcheck.

202. Small Group Communication. An introduction to the theory and practice of purposeful leadership and participation in group, committee, conference, and public discussion. Not available on a P/F basis. SPRING. [3] Kenner.

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. FALL, SPRING. [3] English.

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. FALL, SPRING. [3] Staff.

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. FALL. [3] Morris, Vivian.

221. Rhetoric of the American Experience: 1865 to the Present. 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 1865 to the present. SPRING. [3] Morris, Vivian.

222. Rhetorical Criticism. An investigation of standards for criticizing persuasive communication. Theories of classical and modern rhetoricians will be examined with special attention to Aristotle, Quintilian, Whately, and Burke. Uses specific movements, speakers, and speeches to illustrate methods of criticism. SPRING. [3] Kovalcheck, Vivian.

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. FALL. [3] Kovalcheck.

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. FALL. [3] Clarke, Demo, Morris.

225. History and Criticism of British Public Address. History and criticism of selected speeches, pamphlets, and rhetorical campaigns in British political, legal, and social controversies. Rhetorical features of selected issues and speakers from Ethelbert to the present. [3] Staff. (Not currently offered)

228. Rhetoric and Public Memory. Rhetorical artifacts that constitute public collective past. Productions of memory, constructions of the past, community and protest, rhetorical, political, and cultural implications. SPRING. [3] Morris.

230. Theory of Communication. A study of the basis for communicative effectiveness and failure. Emphasis on findings of contemporary multidisciplinary research within a framework of historical contributions to the theory of communication. [3] Staff. (Not currently offered)

235. Gender and Communication. Theories of gendered communication in relation, interpersonal, small-group, and mass-mediated contexts. Examination of the social construction of gender through communication. [3] Staff. (Not currently offered)

237. The Communication of Science, Engineering, and Technology. Communicating technical research to the nontechnical public. The effects of public influence on research funding in America. Study of written and oral communication and the importance of creating an informed audience for technical innovation. FALL. [3] Chappell.

240. The Freedom of Speech. Rights and responsibilities of free expression. Theories of free speech; history of censorship; problems of defamation, obscenity, free press versus fair trial, nonverbal communication, advocacy of illegal acts and religious speech. [3] Staff. (Not currently offered)

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. FALL. [3] Sloop, Demo.

242. Communication, Culture, and Consciousness. The relationship between the primary means of communication in a culture and its influence on knowledge and subjectivity. Orality, literacy, print and electronic communication, with a focus on postmodern aesthetics. SPRING. [3] Sloop.

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. FALL. [3] Staff.

257. Contemporary Rhetorical Theory. Exploration of contemporary themes in the investigation of rhetoric. Examination of the number of ways in which “rhetoric” can be represented in contemporary theory and the implications of theory. Theoretical models will include both modern and post-structural perspectives. [3] Staff.

280a–b–c. Internship. Under faculty supervision, interdisciplinary majors in communication gain experience with communication-related organizations, agencies, or corporations. A thorough report and research paper are submitted at the end of the semester. A 2.75 grade point average, at least 6 hours of communication studies from 210, 220, 221, 222, 230, and prior departmental approval of the student's plan are required. Communication Studies 280a. Internship Training. May be taken on a Pass/Fail basis only and must be taken concurrently with 280b. These hours may not be included in the minimum hours necessary for an interdisciplinary major in communication. FALL, SPRING. [Variable credit: 1–6] 280b. Internship Research. FALL, SPRING. [Variable credit: 1–3] 280c. Internship Readings. FALL, SPRING. [Variable credit: 1–3]

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. FALL, SPRING. [Variable credit: 1–3; may be repeated to a maximum of 6] Staff.

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. FALL, SPRING. [3, not to exceed total of 6 in 289, 290 combined.] Staff.

294. Selected Topics in Communication Studies. May be repeated for credit if there is no duplication of topics. SPRING. [3] Staff.

295–296. Seminars in Selected Topics. Topics of special interest as announced in the *Schedule of Courses*. Either or both 295, 296 may be repeated for credit once if there is no duplication of topic. Prerequisite: 15 hours of Communication Studies. [3–3] Staff.

Theatre

Starred courses 100 or 115W or consent of the instructor is prerequisite for the following courses: 212–213–214, 219, 225, 232, and 280. All other prerequisites are listed in the course descriptions.

★**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 completed 115W. FALL, SPRING. [3] Ullom, Franck, T. Hallquist.

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. FALL, SPRING. [4] Otto.

★**115W. Freshman Seminar.** [3]

170. Introduction to Film Making. Basics of motion picture production through the creation of four short video projects. Practical analysis of shorts, documentaries, and feature films. Emphasis on storytelling with the camera. FALL, SPRING. [4] Akers.

201–202. The Development of Drama and Theatre. A historical and critical study of significant drama and the physical theatre from the beginning to 1920. 201: Aeschylus to 1642; FALL. 202: 1642 to 1920; SPRING. Prerequisite: sophomore standing or consent of the instructor. [3–3] 201 (Offered alternate years); 202 (Offered alternate years) Ullom.

203. Contemporary Drama and Theatre. A critical study of significant drama and theories of theatrical production in Europe and America since 1920 with special emphasis on the emergence of the American theatre to a position of international importance. Prerequisite: sophomore standing or consent of the instructor. SPRING. [3] Ullom. (Offered alternate years)

204. Development of the American Theatre. Theatrical activity in the United States from the Colonial period to the present. The course will include the reading of selected plays. Prerequisite: sophomore standing or consent of the instructor. FALL. [3] J. Hallquist. (Offered alternate years)

205. American Musical Theatre. The American musical remains the most popular form of theatrical entertainment since its inception in 1866. By exploring and discussing the genre's history and development, participants will gain appreciation for the unique history of musicals as well as a critical eye toward the craftsmanship and artistry involved in creating this distinctly American form of theatrical entertainment. Students who have taken Theatre 115W ("Musicals") are prohibited from taking this class. Prerequisite: sophomore standing or consent of the instructor. SUMMER. [3] Ullom.

211. Rehearsal—Production. Students performing major technical assignments in university theatre productions may receive 1 hour credit 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. Prerequisite: 212, 213, or 214 as appropriate. FALL, SPRING. [Variable credit: 1–2; may be repeated to a maximum of 3]

212–213–214. Elements of Basic Design. Physical aspects of the theatre explored as an aid to understanding and critical evaluation of their role in the art of theatre.

212. Scenery and Properties. Prerequisite: 100 or 115W and 110 or consent of the instructor. FALL. [4] Franck.

213. Lighting and Sound. Prerequisite: 100 or 115W and 110 or consent of the instructor. SPRING. [4] Franck.

214. Costuming and Makeup. Prerequisite: 100 or 115W and 110 or consent of the instructor. FALL. [4] Sargent.

219. Acting I. The actor's role in the theatre with emphasis on acting as artistic self expression through improvisation and development of performance skills. Prerequisite: 100 or 115W. Not available on a P/F basis. FALL, SPRING. [3] J. Hallquist.

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. Prerequisite: 219. Not available on a P/F basis. SPRING. [3] J. Hallquist.

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. FALL, SPRING. [Variable credit: 1–2; may be repeated to a maximum of 3]

223. Problems of Acting Style. Advanced scene study, investigating methods used today to perform drama of past eras which used non-realistic styles. Prerequisite: 220. Not available on a P/F basis. SPRING [3] J. Hallquist. (Offered alternate years)

- 225. Playwriting.** Instruction in writing plays with critical attention to dramatic themes and characterization. Prerequisite: 100 or 115W and consent of the instructor. SPRING. [3] Akers.
- 227. Screenwriting.** An introduction to the techniques of screenwriting. Admission by consent of the instructor. FALL. [3] Akers.
- 230. Play Direction.** Play direction as an aid to critical understanding and appreciation of the theatre. Development of techniques. Prerequisite: 219. FALL. [3] T. Hallquist.
- 232. Shakespeare in the Theatre.** An intensive analytical study of selected plays and scenes designed to acquaint the student with the interaction between script, theatre, and audience in terms of production in the theatre. Prerequisite: 100 or 115W or consent of the instructor. SPRING. [3] T. Hallquist.
- 271. American Film Forms.** A critical study of major forms of feature-length motion pictures especially associated with American film-making. Representative examples of five major genres. SUMMER. [3] J. Hallquist.
- 275. Advanced Screenwriting.** Advanced instruction in screenwriting. Emphasis on compelling ideas, advanced story structure, dramatic character development, and dialogue. Prerequisite: 227. [3] Akers.
- 276. Recent Cinema.** Critical analysis of motion pictures produced in the past ten years with emphasis on a variety of story telling modes, including genre, and theme, and on practical application of production techniques. [3] Akers.
- 277. Advanced Filmmaking.** Advanced instruction in filmmaking. Emphasis on film theory, camera placement, editing, and sound design. Prerequisite: 170. [4] Akers.
- 278. Advanced Production Workshop.** Intensive advanced exercise in filmmaking. Students participate as crew for significant video project. Admission by consent of instructor. [3] Akers.
- 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: Theatre 100 or 115W or consent of the instructor. [3] Staff.
- 289. Independent Study.** A research project in selected aspects of theatre and drama to be arranged with the instructor. FALL, SPRING. [Variable credit: 1–3] Staff.
- 294. Selected Topics in Theatre.** Intensive study of a particular area of theatre. Emphasis on personal investigation and written reports. [3]
- 299a–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 honors work in Theatre. FALL, SPRING. [3–3] Ullom.

Comparative Literature

DIRECTOR Earl Fitz

1 THIS program familiarizes students with the global context of the Western tradition, as well as with the Western tradition in literature and culture. Students study European, American, and World literature, with an emphasis on theory and interpretation. The program is directed by Earl Fitz, Professor of Spanish, Portuguese, and Comparative Literature. Students should fulfill 36 credit hours, according to the following requirements.

Program of Concentration in Comparative Literature

I. Humanities, Tradition, and the World

Three courses (9 credit hours) in literature in translation including Humanities 140 and 141 and one other course. The additional course of literature in translation can be a course in Humanities beyond 141, or can come from any department or program within the College as approved by the program director. (Examples include German 245–246, German Masterpieces in English Translation; Philosophy 210, Ancient Philosophy; Religious Studies 108, Themes in the Hebrew Bible; Russian 221–222, Survey of Russian Literature; Spanish/Portuguese 293, Contemporary Latin American Prose Fiction in English Translation.) Selected Freshman Seminars (115s) may qualify if approved by the director of the program.

II. Primary Literature Field

Three courses (9 credit hours). A student who is also pursuing a major in the language chosen to satisfy the Primary Literature Field may count 6 appropriate hours of the language major towards the Primary Literature Field, and need not take the remaining 3 hours in the Primary Literature Field, but may take instead an additional 3 hours in the Secondary Literature Field.

Literature in the candidate's language of choice, other than the student's native language. Standard literary languages include (but are not limited to) French, Italian, German, Russian, Spanish, Portuguese, Latin and Greek. Courses may be selected from the attached list or in consultation with the director of the program, or with the program's director of undergraduate studies.

Courses based on texts studied in translation do not satisfy this requirement.

Courses satisfying this requirement include the following:

English: 208a–b, Representative British Writers; 210, Shakespeare; 211, Representative American Writers; 212, Southern Literature; 220, Chaucer; 221, Medieval Literature; 230, The Eighteenth-Century English Novel; 231, The Nineteenth-Century English Novel; 232a–232b, Twentieth-Century American Novel; 248, Sixteenth Century; 249, Seventeenth-Century

Literature; 250, English Renaissance: The Drama; 252a–252b, Restoration and the Eighteenth Century; 253, The Age of Pope and Johnson; 254a–254b, The Romantic Period; 255, The Victorian Period; 256, Modern British and American Poetry, Yeats to Auden; 257, Seventeenth-Century Prose; 258, Contemporary British and American Poetry; 259, Nineteenth Century American Poetry; 260, Nineteenth-Century American Women Writers; 262, Literature and Law; 263, African American Literature; 264, Modern Irish Literature; 266, Nineteenth-Century American Literature; 271, Caribbean Literature; 279, Modern Drama; 280, Twentieth-Century British Drama; 281, The English Lyric; 283, Satire; 284, The Comic Novel; 285, Restoration and Eighteenth-Century Drama; 286a–286b, Twentieth-Century Drama; 287, Love and the Novel.

French: 220, Introduction to French Literature; 222, Introduction to Francophone Literature; 232, French Poetry from Villon to Malherbe; 235, Farce and Comedy; 236, Tragedy and *drame*; 237, The Early Modern Novel; 238, The Twentieth-Century Novel; 239, The African Novel; 240, Rabelais, Montaigne, and Their Times; 253, Literature of the Fantastic; 255, French Feminist Thought; 257, The Nineteenth-Century Novel and Society; 260, Enlightenment and Revolution; 261, Age of Louis XIV; 265, From Romanticism to Symbolism; 267, Twentieth-Century French Literature; 270, The French Literary Tradition.

German: 221–222, Background and Main Currents of German Literature; 235, German Romanticism; 241, The Racial Imagination; 248, The German Lyric; 262, German Literature of the Middle Ages; 263, The Age of Goethe; 264, Nineteenth-Century Drama; 265, Twentieth-Century Drama; 266, Twentieth-Century Prose; 267, The German Novel of the Twentieth Century; 268, Modern German Short Story; 269, East German Literature; 280, *Sturm und Drang*.

Spanish: 203, Spanish and South American Literature; 230, Development of Lyric Poetry; 231, The Origins of Spanish Literature; 232, Literature of the Spanish Golden Age; 233, Modern Spanish Literature; 234, Contemporary Spanish Literature; 236, Contemporary Literature of Spanish America; 237, Contemporary Lyric Poetry; 239, Development of the Novel; 240, The Contemporary Novel; 244, Afro-Hispanic Literature; 246, *Don Quixote*; 251, Development of Drama; 252, Contemporary Drama; 260, Development of the Short Story; 281, Theory and Practice of Drama.

Classical Languages and Literatures: Greek 204, Intermediate Greek: Homer's *Iliad*; Greek 215, The Greek Tragedians; Greek 216, Readings in Plato and Aristotle; Latin 201, Catullus and Horace; Latin 202, Ovid; Latin 206, Cicero and the Humanistic Tradition; 212, Roman Comedy; 215, The Roman Historians.

III. Secondary Literature Field

Two courses (6 credit hours). Literature in another language from that chosen for Primary Field, courses customarily chosen from attached list or in consultation with the director, or the program's director of undergraduate studies. The language of study may be the student's native language,

including English. If the language is English, course material should consist primarily of works originally written in English and not translated. American, British, or post-colonial literature in English are all eligible.

Courses based on texts studied in translation do not satisfy this requirement.

IV. World Literature

One course (3 credit hours) in literature in translation in Classics or Middle Eastern, Far Eastern, African or other non-modern or non European Literatures, including Arabic, Chinese, Japanese, and Hebrew. Eligible courses may be taken in Comparative Literature or in other departments and programs.

V. Analysis and Theory

One course (3 credit hours) at sophomore level or higher, in methods and paradigms in interpretive disciplines including among subject areas Anthropology, Art History, Cognitive Psychology (Peabody College), History, Political Science, Philosophy, Religious Studies, Women's Studies.

Courses fulfilling this requirement would, for example, include the following:

Anthropology: 203, Anthropological Linguistics; 206, Theories of Culture and Human Nature; 209, Human Diversity; *Classical Studies*: 227, Ancient Greek Art and Architecture; *Art and Art History*: 215, Formation and Power of Christian Images; 227, Ancient Greek Art and Architecture; *Philosophy*: 212, Modern Philosophy; 226, Phenomenology; 231, Philosophy of History; 241, Contemporary Issues in Aesthetics; *Political Science*: 206, Foundations of Marxism; 207, Liberalism and Its Critics; *Psychology and Human Development*: 1700, Social and Emotional Context of Cognition (Peabody); *Religious Studies*: 120, Religion, Sexuality, Power; 223, Ethics and Feminism; 234, Post-Freudian Theories and Religion; 235, Freudian Theories and Religion; *Sociology*: 239, Men, Women and Society; *Religious Studies*: 223, Ethics and Feminism; *English*: 246, Feminist Theory.

VI. Elective

One elective course (3 credit hours) from one of the categories in sections I-V. Particular "Selected Topics" courses may be approved upon occasion. Final selection of all courses satisfying requirements in sections I-VI must be approved by the program's director of undergraduate studies.

VII. Senior Seminar

One course (3 credits): Senior Seminar in Methods in Comparative Literature and Theories of Reading and Interpretation.

Honors

Students wanting to qualify for consideration for the Honors Program in Comparative Literature must have a grade point average of 3.000. To graduate with honors in Comparative Literature, a student must (a) complete all the requirements of the standard Comparative Literature major course work including 6 hours in Honors sections (299a-299b);

(b) maintain a 3.000 average overall and 3.300 in the major; (c) be admitted into the Honors seminar (299a) of the fall of the senior year ; (d) complete a thesis in the senior year (299b); (e) pass an oral examination, based principally on the thesis, in the spring of the senior year.

Honors students are encouraged to take one graduate course in their primary literature field, or in Comparative Literature. Students taking the Honors seminar (299a) are not required to take the Senior Seminar in Methods in Comparative Literature and Theories of Reading and Interpretation, though they may choose to take this course as one of their electives.

Minor in Comparative Literature

The minor in Comparative Literature consists of a minimum of 18 credit hours. Students are required to take 3 courses (9 credit hours) in literature in translation, including Comparative Literature 140 and Comparative Literature 141 and one other course, as described in section I of requirements for the major. Students must also take two courses (6 credit hours) in primary literary field, as in Section II of requirements for the major, and the Senior Seminar in Methods in Comparative Literature and Theories of Reading and Interpretation (3 credit hours).

Humanities

105W. World Drama. Representative plays of world literature with an examination of different styles and forms, including diverse formal concepts, and the relation of drama to cultural contexts. FALL, SPRING. [3] Staff.

106W. Literature of Ideological Discourse: Fiction vs. Non-Fiction. Study of how authors manipulate our responses to their texts. Modes of presentation, discourse analysis, and narrative techniques with focus on authorial intent, reader response, stylistics, and reception theory. Aristotle, Machiavelli, Milton, Woolf, Remarque, Candé, and de Assis. FALL, SPRING. [3] Staff.

107W. Literature and the Interpretation of Culture. Modes of analyzing contemporary cultural phenomena, including advertisements, films, and novels. One novel (both canonical and popular) and one film are included. FALL, SPRING. [3] Staff.

108W. World Fiction: Short Stories. Short fiction from ancient to modern times, and from African, Asian, and European literary traditions. Concepts of transhistorical value encounter particular historical and social contexts. Aesop, "Anansi" stories, the *Bible*, *Thousand and One Nights*, Cervantes, Diderot, Mansfield. FALL, SPRING. [3] Staff.

115, 115W. Freshman Seminar. [3]

140–141. Great Books of the Western Tradition. Discussion of a selected number of great books from the points of view of literary expression and changing ideologies. 140: classical Greece through the Renaissance. 141: the seventeenth century to the contemporary period. FALL, Franke; SPRING, Fesmire. [3]

150–151. Humanities. Analysis and discussion of a selected number of the great works of literature, philosophy, and the arts, representative of the main periods and intellectual

movements in Western civilization. The works are studied primarily in relation to the permanent humanistic values of our culture. 150: the Greek, medieval, and Renaissance periods. 151: the modern period from the seventeenth century to the present. 150 FALL [3] Fesmire; 151 SPRING [3] McCarthy (Germanic and Slavic Languages).

156. Images of Women. An introduction to the study of images and roles of women in Western society as reflected primarily in literature and art. Readings and discussions will concentrate on modern works that draw for background on Greek and Roman mythology, the *Bible*, medieval and Renaissance materials. FALL, SPRING. [3] Staff.

160–161. Selected Topics. 161, SPRING. [3–3]

175. The Classical Tradition and English Poetry. Survey of selected poetic genres, forms, and topics from Homer through Auden. [3] Staff. (Not currently offered)

Comparative Literature

202. Themes in World Literature. Analysis and discussion of major themes in a selected number of the great works of literature, philosophy, and the arts which have been important to civilizations both Western and Eastern from antiquity to 1600. [3] Staff. (Not currently offered)

203. Themes in World Literature. Analysis and discussion of major themes in a selected number of the great works of literature, philosophy, and the arts which have been important to civilizations both Western and Eastern from 1600 to the present. [3] Staff. (Not currently offered)

215. Travel, Adventure, and Discovery in Western Literature. The significance and uses of imaginary travel in the western literary tradition, from the *Odyssey* to the present, with emphasis on the Enlightenment. Topics include scientific discovery, colonialism, and gender. [3] (Not currently offered)

224. Dante's *Divine Comedy*. Reading and analysis of the complete *Inferno* and a study of selected cantos from the *Purgatorio* and *Paradiso*, all in English translation. SPRING. [3] Franke (French and Italian).

225. European Realism. Analysis of representative nineteenth-century novels that gave rise to current theories of realism. Balzac, Dickens, Clarín, Galdós, and Dostoevsky. SPRING. [3] Barsky (French and Italian).

230. Contemporary Literature of Central Europe. Fiction in translation from Czechoslovakia, Poland, Hungary, Yugoslavia, and East Germany. Kafka's vision of modernity from the tragic to the absurd, as interpreted by Kafka and his heirs, including Kundera, Schulz, and Schneider. [3] (Not currently offered)

237. Medieval Women in Their Own Words. European writers from the late classical period through the Middle Ages. Autobiographies, hymns, fictions in poetry and prose with attention paid to ethnic and linguistic difference, cultural background, religious and philosophical ideas. Focus on political influence, personal relations, health and other life concerns, condition in society, and self-perception as writers. [3] Barrett. (Not currently offered)

240. Literatures of Africa. Literatures of Africa, including works originally composed in Arabic and in French, English, or other European languages as well as in various African languages. Cultural variations are emphasized, including differences in linguistic backgrounds

and religious beliefs (Islamic, Christian, and indigenous). Texts taught in translation. Authors typically included: Mafouz, Achebe, Ngugi, Soyinka, Djebbar, Sembene. [3] Nzabatsinda (French). (Not currently offered)

278. Colonial and Post-Colonial Literature. Literature from countries colonized by Europe from eighteenth to twentieth century. Examines implications of colonial encounter, and formation of idea "post-colonial" culture. Subjects include language, freedom and agency, gender roles, representation of space, relation between power and narrative. Such authors as: Foster, Coetzee, Okri, Tagore, Chatterjee, Kincaid, Rushdie, Soyinka. [3] (Not currently offered)

285. Inter-American Literature: The Pre-Columbian Period through the Eighteenth Century. Orality vs. the written tradition; the legacy of Native American literature; the literature of conquest, resistance, and colonization; colonial letters in North, Central, and South America; the origins of inter-American cultural relations; the eighteenth century in the Americas. Authors may include: Galeano, Bernal Diaz, Sor Juana Inés de la Cruz, Brian Moore, Condé, and Naipaul. [3] Fitz, Staff.

286. Inter-American Literature: The Nineteenth Century. The coming of age of New World literature; the impact of Romanticism on cultural formation and independence; Native Americans in this process; New World nation-states and national literatures; slavery and race relations; the theme of miscegenation; issues of influence and reception; the rise of the New World novel; Naturalism in the Americas. Readings may include the following authors: Alencar, Henry James, Whitman, Machado de Assis, and Stowe. [3] (Offered 2005/2006)

287. Inter-American Literature: The Twentieth Century to the Present. Rodó and the United States; Modernism in the Americas; Depression era literature; the impact of Faulkner; the 1960s and the rise of the "new novel"; "realismo mágico" and its impact in Brazil, the United States, and Canada; the politics and aesthetics of translation; the emergence of inter-American literature as an academic discipline. Readings may include Machado de Assis, Borges, Barth Márquez, Fuentes, and Brossard. [3] (Offered 2005/2006)

289. Independent Study. Intended primarily for majors and minors. Projects are to be organized by individual professors but must be approved by the director of undergraduate studies before the close of registration. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 12 over a four-semester period] Staff.

293. Seminar: Literary Methodologies. Selected methodological approaches to the study of literature in comparison with related fields such as philosophy, psychology, and history. Limited to juniors and seniors. [3] Staff. (Offered alternate years or as needed)

294. Special Topics. Topics of special interest, as announced in the *Schedule of Courses*. Individual courses are at a more advanced level than 160–161 and may have prerequisites. [3] Staff.

299a. Honors Seminar. Background for writing the Honors thesis. Comparatist methodologies, critical approaches, problems of interdisciplinary study. Methods of research, choosing a topic. Advanced writing exercise in preparation for Honors thesis. Limited to seniors admitted to the honors program in Comparative Literature. [3]

299b. Honors Thesis. Prerequisite: 299a. [3]

Earth and Environmental Sciences

CHAIR David J. Furbish

DIRECTOR OF UNDERGRADUATE STUDIES Molly Fritz Miller

DIRECTOR OF GRADUATE STUDIES Calvin F. Miller

PROFESSORS EMERITI Leonard P. Alberstadt, Arthur L. Reesman, William G. Siesser,
Richard G. Stearns

PROFESSORS David J. Furbish, Calvin F. Miller, Molly Fritz Miller

ASSOCIATE PROFESSOR John C. Ayers

ASSISTANT PROFESSOR Kaye S. Savage

SENIOR LECTURER Jonathan M. Gilligan

LECTURER N. Kinzly Moore

1 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. or B.S. 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 with an Environmental Geoscience Concentration, or may construct an individualized interdisciplinary major. Alternatively, a student may major in another conventional discipline and augment that with an environmental science or environmental studies minor.

Programs of Concentration in Earth and Environmental Sciences

Three programs of concentration are available. Program I (Concentration in Geoscience) provides a background for careers or post-graduate

work in related fields such as teaching, law, or business, or, with appropriate supporting sciences and mathematics, for graduate school and some professional positions in the geological sciences. Program II (Concentration in Environmental Geoscience) prepares students for careers or graduate work in environmental geosciences. Program III (Honors) is designed for excellent, highly motivated students who want to pursue research as undergraduates. Course requirements for each concentration are listed below.

I: Geoscience Concentration II: Environmental Geoscience III: Honors

101, 111	4	101, 111	4	Course work as for	
102	4	102 or 220	4	Program I or II	31-33
220	4	225	4	292a-292b	4-6
225	4	230	4		
226	4	240	4		
230	4	257	3		
240	4	260	4		
One additional 200- or 300-level course other than 289 or 291	3	264 or a summer course in field methods (with prior departmental approval)	3		
		One additional 200- or 300-level course other than 289 or 291	3		
Total hours	31	Total hours	33	Total hours	35-39

Program I. Geoscience Concentration. Provides students with a comprehensive background in geoscience. In addition to the courses listed above, students who intend to pursue graduate study or a career in the geological sciences are strongly encouraged to take one year of chemistry, one year of calculus, and one year of physics. (Ecology or evolution may be more appropriate for some students than the second semester of physics.)

Program II. Environmental Geoscience Concentration. Provides students with course work needed for a career or graduate studies in environmental science. In addition to the courses listed above, students must complete supporting work in mathematics and the natural sciences. This includes Biological Sciences 218 or 238 or Physics 116a, 117a, or 121a; Chemistry 102a-b and 104a-b, one year of calculus, and an additional course approved by the EES faculty in mathematics, engineering, or any of the natural sciences other than EES. A student may petition the EES faculty to substitute an alternative list of courses in mathematics and the natural sciences.

Program III. Honors. Provides research experience as well as thorough course work preparation for a career or graduate studies in earth or environmental sciences. 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 3.000 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 undertake a research project of interest to both the student and faculty member during the senior year. The project is submitted as a senior thesis which is reviewed by two faculty members; it is also presented orally to EES faculty and students during the spring semester. In order to graduate with honors in EES, a student must: (1) maintain a 3.000 average; (2) complete 4 to 6 hours of GEOL 292a-292b, including a written senior thesis; (3) adequately present the results of his/her research in written form to two members of the faculty and orally to students and faculty of the department; and (4) complete supporting work in mathematics and relevant natural science. This includes Physics 116a, 117a, or 121a; Chemistry 102a-b and 104a-b, one year of calculus, and an additional course approved by the EES faculty in mathematics, engineering, or any of the natural sciences other than EES. A student may petition the EES faculty to substitute an alternative list of courses in mathematics and the natural sciences.

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 5 courses (16 hours). Although GEOL 101 (with 111) and 102 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 2 of the following count towards the minor: 100, 101 (with 111), 103 (with 113). No credit toward the minor is given for GEOL 106, 150, 289, or 291.

Minor in Environmental Science

Students may choose an interdisciplinary minor in environmental science. 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.

Minor in Environmental Studies

Students may choose an interdisciplinary minor in environmental studies. Humans and their society necessarily interact with and alter the Earth's natural environment. The environmental studies minor allows the student to examine human interaction with the environment from a variety of points of view.

Students who want to minor in Environmental Studies must take a minimum of five courses chosen from the courses listed below and approved by an adviser. Two courses must come from the core lists (A and B); at least one of these courses must be from the environmental studies core list (B). Two or more additional courses must come from either the environmental studies list (D) or the core environmental studies list (B). 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, Energy, Environment, and Culture; 230, Environment and Archaeology. Biological Sciences: 218, Introduction to Botany; 219, Introduction to Zoology; 238, Ecology; 273, Molecular Mechanisms of Environmental Toxins. Environmental Engineering: 271, Environmental Chemistry. Earth and Environmental Sciences: 100, Environmental Geology; 257, Hydrogeology; 260, Geochemistry; 264, Methods in Environmental Geology. Physics: 108, Atmospheric Physics.

B.) CORE ENVIRONMENTAL STUDIES: Anthropology: 207, Energy, Environment, and Culture; 230, Environment and Archaeology. Economics: 278 or 283, The Technical Basis for Environmental Policy/Economics of the Environment. Engineering Science: 157, Technology and the Environment. Honors: 181, Philosophy of Nature. Philosophy: 206, Technology and Human Values. Sociology: 220, Population and Society; 270, Human Ecology and Society; 281, Development for a Small Planet.

C.) ENVIRONMENTAL SCIENCE: Anthropology: 272, Human Variation. Biological Sciences: 205, Evolution; 270, Statistical Methods in Biology; 262, Bimolecular Interactions. Chemistry: 210, Analytical Chemistry I; 211, Analytical Chemistry II; 220a–b, 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; 106, Marine and Coastal Environments; 150, Geology and Its Influence on Civilization; 220, Life through Time; 320, Aqueous Geochemistry (with special approval). Mathematics: 219, Introduction to Applied Statistics. Biological Sciences: 210, Principles of Genetics; 211, Genetics Laboratory; 220, Biochemistry I; 265, Biochemistry II.

D.) ENVIRONMENTAL STUDIES: Anthropology: 173, Social Behavior of Nonhuman Primates; 233, Culture, Ecology, and International Development; 271, Human Evolution; 272, Human Variation; 273, Primate Evolution. Economics: 277, Economic Development and the Environment; 284, Economics of Regulation. Philosophy: 244, Philosophy and the Natural Sciences; 294, Selected Topics: Environmental Ethics.

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.

100. Environmental Geology. Geologic phenomena affecting humans, including various geologic hazards such as earthquakes, landslides, flooding, and coastal erosion. Mineral and energy resources, waste disposal and land-use planning. Does not count towards the major in EES. FALL, SPRING. [3] Staff.

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. Corequisite: 111 except with permission of instructor. FALL, SPRING, SUMMER. [3] M. Miller or Staff.

111. Dynamic Earth Laboratory. Laboratory to accompany 101. Corequisite: 101. One three-hour laboratory per week. FALL, SPRING, SUMMER. [1] Staff.

102. Geological History of the Earth. The methods used to interpret earth history and their development. The organization of matter into minerals, rocks, animals, and plants, and how such organizational frameworks have interacted and changed through time. Geological history of North America as a general example of all continents. Three lectures and one laboratory per week. Prerequisite: 101 and 111 or 100 and 111 with permission of instructor. FALL. [4] Moore.

103. Oceanography. An introduction to the geology, biology, chemistry, and physics of the marine environment. FALL. [3] Moore.

113. Oceanography Laboratory. Laboratory to accompany 103. Corequisite: 103. One three-hour laboratory per week. FALL. [1] Staff.

106. Marine and Coastal Environments. Human interaction with the marine environment. Emphasis on weather and climate, marine ecology and productivity, chemical cycling and pollution, and the processes forming the earth's crust and the coastal zone. A field trip is planned. MAY. [3] Moore.

108. Earth and the Atmosphere. An introduction of the science of the atmosphere and its interaction with society. The atmosphere as part of the earth system; weather and climate; local and global environmental issues, such as urban smog, acid rain, stratospheric ozone depletion, and global warming; interaction of science, politics, economics, and ethics in setting environmental policy. SPRING. [3] Gilligan.

109. Introduction to Geologic Field Methods. Field methods used to investigate geologic problems. Lectures will prepare students for two weekend field experiences in central Tennessee, Kentucky, and the Appalachian Mountains. Topics include igneous, sedimentary and metamorphic processes, deformation of rocks, the fossil record, and modern environmental systems. Prerequisite: 100, 101, or 103. SPRING. [1] Savage.

115. Freshman Seminar.

205. Science, Risk, and Policy. Formal and practical principles of risk analysis; science in government regulations and civil litigation; cultural and scientific constructions of risk; comparison of markets, regulatory agencies, and courts for managing technological risk; case studies such as space shuttle crashes, cancer clusters, and global warming. Prerequisite: any one course in statistics. Political Science 100 and Economics 101 recommended but not required. SPRING. [3] Gilligan.

220. Life Through Time. Ecology, classification, evolutionary history 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 or junior standing as a biological sciences major. No credit for graduate students in EES. SPRING. [4] M. Miller.

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 or 104. FALL. [4] C. Miller.

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. SPRING. [4] C. Miller.

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. Prerequisite: 225 or 226. No credit for graduate students in EES. FALL. [4] Staff.

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. Pre- or corequisite: 226. No credit for graduate students in EES. FALL. [4] Staff.

257. Hydrogeology. An introduction to hydrogeology with emphasis on distribution, movement, and chemistry of groundwater. Principles of groundwater flow, water chemistry, and geology related to exploration, evaluation, development, and protection of groundwater resources. Prerequisite: 225 and one semester each of chemistry, physics, and calculus. FALL. [3] Savage.

258. Environmental Geochemistry. Concepts, principles, and models of chemical processes operating at or near the earth's surface. Thermodynamics, kinetics, organic and isotope geochemistry, environmental mineralogy. Application of concepts to environmental problems. Prerequisite: 225 and Chemistry 102a–102b. FALL. [3] Ayers.

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 Chemistry 102a–102b, or consent of instructor. FALL. [3] Ayers.

264. Methods in Environmental Geology. Field, laboratory, and analytical methods in geological and environmental investigations. Chemical and physical principles of analytical instrumentation; analysis and reliability of instrumental measurements. Laboratory and field projects; sample collection; field measurements; chemical/spectroscopic analysis. Prerequisite: junior standing, 225 and previous or concurrent in 257 or 260. SPRING. [3] Savage.

279. Problems in Sedimentology and Paleobiology. Relation between past life and its environment as recorded in sedimentary rocks. Emphasis on reconstructing the depositional environment and the ancient communities recorded in Paleozoic sedimentary

sequences in Tennessee, and investigating recent research on the interplay between ecosystems and physical environment during critical periods of earth history. Prerequisite: 220 and 226. FALL. [3] M. Miller.

289a–289b. Directed 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. FALL, SPRING, SUMMER. [Variable credit: 1–2 each semester] Staff.

291a–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. FALL, SPRING. [Variable credit: 2–3 each semester] Staff.

292a–292b. Senior Honors Research. Independent research under faculty supervision culminating in an oral presentation and written thesis submitted to the faculty. Open only to honors candidates. Does not count toward minimum requirements for the major. FALL, SPRING. [Variable credit: 2–3 each semester] Staff.

315. Igneous Petrochemistry and Petrogenesis. SPRING. [3] C. Miller.

320. Aqueous Geochemistry. [3] (Not currently offered)

East Asian Studies

DIRECTOR Yoshikuni Igarashi

Affiliated Faculty

RESEARCH PROFESSOR James Auer

ASSOCIATE PROFESSORS Gerald Figal (History), Yoshikuni Igarashi (History),

James J. Lang (Sociology), Ruth Rogaski (History)

ASSISTANT PROFESSOR Tracy Miller (Art and Art History)

SENIOR LECTURERS Xianmin Liu, Peter Lorge (History), Keiko Nakajima

1 THE East Asian Studies Program is an important part of Vanderbilt University's effort to diversify its curriculum. The program currently offers various courses that cover topics related to East Asia (mainly China and Japan) in art, history, and languages. The affiliated faculty promote better understanding of East Asian societies and the international relations surrounding the region through their teaching as well as their research.

Majors are encouraged to study in one or more of the programs in China and Japan described in the chapter on Additional Programs. The East Asian Studies program requires 42 hours for the major.

Program of Concentration in East Asian Studies

East Asian Studies is acceptable as an interdisciplinary program of concentration. For details, see Interdisciplinary Program of Concentration,

Arts and Science. Most students begin their studies with History 154, 155, or 157, a survey of the civilization of China, Korea, and Japan from ancient times to the present. This course is normally prerequisite for further study in the field. Many students also include courses in Chinese or Japanese—or both—in their program of study, since language is an essential element in the serious study of both the traditional cultures and the contemporary problems of East Asia. Related courses available in other disciplines are listed below.

Recommended courses by subject area are as follows:

ART AND ART HISTORY: 200, Asian Art; 252, Chinese Art; 253, Japanese Art; 254, Japanese Painting and Prints; 289, Independent Research.

CHINESE: 201–202, Elementary Chinese; 214–216, Intermediate Chinese; 231, Chinese Calligraphy; 241–242, Advanced Chinese; 251–252, Intensive Readings in Chinese; 289a–289b, Independent Study.

HISTORY: 154, History of Asian Civilization: Premodern China; 155, History of Asian Civilization: Modern China; 157, History of Asian Civilization: Japan; 247, Themes in Modern Chinese History; 248, China in Revolution; 249, History of Modern Japan; 250, Cultural and Social History of Japan's Recent Past; 251, Popular Culture in Early Modern Japan; 294, Selected Topics in History; 295, Undergraduate Seminar in History; 296, Independent Study in History; 297, Junior Honors Seminar in History; 298, Senior Honors Research Seminar; 299, Senior Honors Thesis.

JAPANESE: 201–202, Beginning Modern Japanese; 211–212, Intermediate Modern Japanese; 241–242, Third-Year Japanese; 251–252, Fourth-Year Japanese; 289a–289b, Independent Study.

POLITICAL SCIENCE: 214, The Japanese Political System; 216, The Chinese Political System; 287–288, Seminars in Selected Topics.

RELIGIOUS STUDIES: 130, Asian Religious Values in Contemporary Life; 132, Religion and Culture in Japan; 133, Asia on Film; 231, Women in Buddhist Traditions; 244, Buddhist Traditions; 249, Zen Buddhism (Not currently offered).

SOCIOLOGY: 278, Comparative Asian Development.

Certain courses offered in the CIEE program and the Rikkyo program in Japan can also be counted toward the major:

BUSINESS/ECONOMICS: The Japanese Business Firm in Its Domestic Economic Context; The Japanese Business Firm in Its Global Economic Context; Managing Globalization: Japan in Asia-Pacific Region.

HISTORY: Twentieth-Century Japan and Korea Relations.

HUMANITIES: Traditional Japanese Arts and Culture; Japanese Popular Culture.

POLITICAL SCIENCE: Politics and Policy in Contemporary Japan; Japan's International Relations; Japan in Asia.

SOCIOLOGY/ANTHROPOLOGY: Contemporary Japanese Society: History, Culture, Institutions.

Honors Program

The honors program in East Asian Studies is a three-semester, 12-hour program of study open to majors. The honors program combines intensive reading in interdisciplinary fields with research into a particular topic. To be admitted to the program, a student must have obtained a minimum grade point average of 3.0 overall and 3.0 in courses counting toward the major, meet all other College requirements, and submit a short description of his/her program of study to the East Asian Studies Committee. Normally students will apply in the first semester of the junior year and begin honors work in the second semester, taking the following courses: East Asian Studies 297, Junior Honors Readings (3 hours); East Asian Studies 298, Senior Honors Readings (3 hours); and East Asian Studies 299a–299b, Senior Honors Thesis (6 hours). Students spending the junior year abroad—and students applying late to the program under extraordinary conditions—may delay taking East Asian Studies 297 until the first semester of the senior year.

Each candidate for honors must submit a thesis, approved by the student's major professor and two other appropriate members of the faculty. The student will also take written and oral examinations at the end of the senior year.

Minor in East Asian Studies

The minor in East Asian Studies requires at least 19 hours of course work and provides a broad knowledge of the languages and literature, politics, history, arts, and religions of China and Japan. Of these 19 hours, 6 must be fulfilled by History 157 and History 154 or 155. 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: East Asian Studies 240; History 154, 155, 157, 247, 248, 249, 250, 295; Political Science 214, 216.

Group B: Art and Art History 200, 252, 253, 254; Religious Studies 130, 132, 231, 244, 249; East Asian Studies 211, 212, 294a–b; History 251.

Group C: Chinese 214 or 216 (5 hrs); Japanese 211 (5 hrs).

The courses offered in the CIEE program and the Rikkyo program in Japan that may be counted toward the major (see the list of courses given above) can also be used to fulfill requirements of the minor.

East Asian Studies 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. FALL. [3] Figal.

East Asian Studies 212. Exploration 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. SPRING. [3] Figal.

East Asian Studies 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. SPRING. [3] J. Auer (Peabody College).

East Asian Studies 289a–289b. Independent Study. Designed primarily for majors who want to study East Asian subjects not regularly offered in the curriculum. Must have consent of instructor. [Variable credit: 1–3 each semester]

East Asian Studies 294a–294b. Special Topics. Seminars or lecture courses devoted to topics in areas of competence of individual instructors and of interest to students, as announced in the *Schedule of Courses*. [Variable credit: 1–3 each semester]

East Asian Studies 297. Junior Honors Readings. General readings supervised by research adviser. [3] Staff.

East Asian Studies 298. Senior Honors Reading. General readings supervised by research adviser. [3] Staff.

East Asian Studies 299a–299b. Senior Honors Thesis. [3–3] Staff.

Economics

CHAIR Ping Wang

VICE CHAIR Mario Crucini

DIRECTOR OF UNDERGRADUATE STUDIES Malcolm Getz

DIRECTOR OF GRADUATE STUDIES Gregory Huffman

PROFESSORS EMERITI Rendigs T. Fels, T. Aldrich Finegan, C. Elton Hinshaw,
Cliff J. Huang, Clifford S. Russell, Gian S. Sahota, Anthony M. Tang, William O. Thweatt,
Fred M. Westfield

PROFESSORS Jeremy Atack, Eric W. Bond, John Conley, William W. Damon,
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John J. Siegfried, Ping Wang, John A. Weymark, Myrna Wooders

VISITING PROFESSORS Cliff J. Huang, Andrew Hughes Hallett, William K. Hutchinson

ASSOCIATE PROFESSORS Kathryn H. Anderson, William J. Collins, Mario Crucini,
Malcolm Getz, Peter L. Rousseau, George H. Sweeney, Quan Wen

ASSISTANT PROFESSORS Christian Ahlin, Neville Jiang, Mototsugu Shintani,
Diana N. Weymark, Benjamin Zissimos

SENIOR LECTURERS Stephen G. Buckles, Kevin Clark, Stephanie So, John Vrooman

1 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 offers a 21-hour minor in financial economics and participates with the Department of History in a concentration in economics and history. Other economics-related minors are discussed under “Managerial Studies.”

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 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. 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 115 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, 231, and 232, courses that are required in the economics major and minor (150, and 231 are also required in the financial economics minor). At least one semester of calculus is required for all our programs.

Minor in Economics

The minor in economics requires 21 credit hours as follows: Economics 100 and 101, Principles of Economics; Economics 150, Economic Statistics (or Math 218 and Math 218L); and Economics 231, Intermediate Microeconomic Theory; and 9 credit hours of electives. At least one elective must be numbered 250 or above. One semester of calculus is prerequisite to Economics 150 and Economics 231. Financial Economics courses may not be taken for credit in the minor in economics.

Minor in Financial Economics

The minor in financial economics requires 21 credit hours as follows: Financial Economics 140, Accounting; Economics 150, Economic Statistics (or Math 218 and 218L); Economics 231, Intermediate Microeconomic Theory; and 12 credit hours of electives chosen from the following list or other courses in financial economics.

FnEc 220 Managerial Accounting
FnEc 240 Corporate Finance
FnEc 261 Investment Analysis
FnEc 275 Financial Management
Econ 209 Money and Banking
Econ 245 History of American Enterprise
Econ 259 Financial Instruments and Markets
Econ 264 Open Economy Macroeconomics

One semester of calculus is prerequisite to Economics 150 and Economics 231; two semesters of calculus are prerequisite to Mathematics 218. Economics 100 and 101 are prerequisite to the economics courses and to

the financial economics courses numbered above 220. Economics 232 is prerequisite to Economics 259 and 264. Economics majors must complete 15 credit hours in Financial Economics courses in order to complete the minor in financial economics. Courses in economics do not carry credit in the Financial Economics minor when a student majors in economics.

Honors Program in Economics

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 required courses, plus Economics 253, Introduction to Econometrics. They also take 6 hours of regular electives along with 12 hours of work in policy seminars, Independent Study (Economics 291a–b), Senior Thesis (Economics 292a–b), and Honors Seminar (Economics 295a–b). 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 High Honors in economics. Interested students who meet the College'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.

Economics

Starred courses 100 and 101 are prerequisite for all 200-level courses in the department, with the following exceptions: Financial Economics 140 (no prerequisite); Economics 150 (prerequisite is one semester of calculus; some background in economics is desirable); and Economics 222 (prerequisite is Economics 100).

★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. FALL, SPRING. [3] Vrooman, Buckles.

★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. FALL, SPRING. [3] Buckles.

115, 115W. Freshman Seminar. [3]

150. Economic Statistics. The use of quantitative data in understanding economic phenomena. Probability, sampling, inference, and regression analysis. Prerequisite: one semester of calculus. (Math 140, 150a, or 155a or equivalent); some background in economics is desirable. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Hutchinson.

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. Not intended for students who have completed 231. FALL. [3] Anderson .

222. Latin American Economic Development. Recent economic growth and structural change of Latin American economies. The general issues of development economics, such as the mobilization of savings and capital formation, import-substituting industrialization, inflation, agricultural reform, regional and national economic integration, population growth and migration, and balance-of-payments problems. No credit for graduate students in economics. SPRING. [3] Andrade.

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. FALL, SPRING. [3] Hutchinson, Atack.

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: one semester of calculus. FALL, SPRING. [3] J. Weymark, Jiang.

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: one semester of calculus. FALL, SPRING. [3] Huffman, Zissimos; Collins, Zissimos.

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. No credit available for students who have completed ECON 115, Section 2, Strategic Thinking and Interactions. SPRING. [3] Wen.

246. Unions, Management, and Public Policy. Labor unions and industrial relations in the United States with special attention to public policy issues. The growth and decline of the labor movement, the evolution of national labor policy, the National Labor Relations Act, union government, collective bargaining, public sector unionism, and the arbitration of grievances. [3] (Not currently offered)

249a–249b. Selected Topics in Economics. Topics to be announced. May be repeated more than once if there is no duplication of topic. [Variable credit: 1–3 each semester]

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: 150 and 231, or consent of instructor. [3] (Offered 2005/2006)

252. Antitrust Economics. The purposes and effects of antitrust laws in the United States. Economic theory applied to the problems of preserving and enhancing competition. Evaluation of incentives created by judicial precedents in terms of efficiency and performance. Not open to students who have taken 224. Prerequisite: 231. FALL. [3] Siegfried.

253. Introduction to Econometrics. Quantitative methods of economic analysis. Measurement, specification, estimation, and interpretation of economic models, introduction to econometric computation using microcomputers. No credit for graduate students in economics. Prerequisite: 231 and either 150 or Math 218 and 218L. FALL. [3] Huang.

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 or equivalent. SPRING. [3] Wooders.

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. Prerequisite: 231 and 232. Limited to majors in economics and public policy. FALL, SPRING. [3] Buckles, Hughes Hallett; Buckles, Huffman.

257. Seminar in Microeconomic Policy. Intensive study of three or four current problems in microeconomic policy. Prerequisite: 231. Limited to majors in economics and public policy. FALL, SPRING. [3] Zissimos, Ahlin.

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. FALL. [3] Rousseau.

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. SPRING. [3] Maneschi.

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. Prerequisite: 231. FALL, SPRING. [3] Driskill; Hutchinson, Driskill.

264. Open Economy Macroeconomics. 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. FALL, SPRING. [3] D. Weymark.

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. SPRING. [3] Weymark.

266. Problems in United States Economic History. Controversies in historical analysis. Prerequisite: Economics 231. FALL, SPRING. [3] Collins.

267. Economics of Poverty and Discrimination. Develops methodologies used to measure the effectiveness of governmental programs aimed at reducing poverty and discrimination, and uses these methodologies to examine the equity and efficiency of current programs. Topics include social security, food stamps, and equal employment opportunity legislation. Prerequisite: 231. [3] Margo. (Not currently offered)

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. FALL, SPRING. [3] So.

269a–269b. Selected Topics in Economics. Topics of special interest, as announced in the *Schedule of Courses*. [Variable credit: 1–3 each semester]

270. Economics of Sports. Application of economic principles to professional and collegiate team sports. Theory of sports leagues, demand for sports, the market for athletes, racial discrimination, broadcasting rights, antitrust issues. No credit for both 270 and 280. Prerequisite: 150 and 231. SUMMER. [3] Siegfried.

271. Economic History of Europe. The stages of development of capitalism and modern industry in Europe since the decline of feudalism. The interrelations of government policy, financing institutions, scientific discovery, and the spirit of individualism. Prerequisite: 231. SPRING. [3] (Not currently offered)

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. SPRING. [3] Wooders.

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. FALL. [3] Reinganum.

277. Economic Development and the Environment. The influence of economic development on the environment with special attention to developing countries. Measurement of economic growth. Sustainability of natural resources. Discussion of trade, pollution, forestry and ecotourism, population change, agriculture and land tenure. SPRING. [3] (Not currently offered)

279. Urban Economics. Urban growth, development of suburbs, location of firms, housing markets, transportation, property taxes, and local government services. Prerequisite: 231. SPRING. [3] Getz.

280. Seminar in Sports Economics. Economic theory of sports leagues: competitive balance, player labor markets and owner capital markets. Theories of league expansion, rival leagues, franchise relocation and sports venues. Research paper. No credit given for both 280 and 270. Preference given to senior majors. Prerequisite: 231. FALL, SPRING. [3] Vrooman.

282. Education and Economic Development. The influence of education on economic growth and development in developing countries. Theory and measurement of economic growth and human capital. Distributional and efficiency effects of human capital policies. Influence of international organizations on human capital development. Education and social cohesion. Prerequisite: 231 and 150 or consent of instructor. SPRING. [3] Anderson.

284. Economics of Regulation. The purposes and effects of government regulation. Analysis of natural monopoly, externalities, public goods, and information deficiencies. Case studies usually include electricity, natural gas, airlines, trucking, health and safety, communications, and the environment. Prerequisite: 231. [3] Staff. (Not currently offered)

285. Law and Economics. Analysis of the influence of legal rules and institutions on the behavior of individuals and economic efficiency and equity. Applications from civil procedure, contract, tort, and criminal law. Prerequisite: 231. SPRING. [3] Daughety.

286. Economics of Human Resources. Human capital theory; economic effect of population trends, fertility, and migration. Additional topics chosen from education, household economics, health, nutrition, demand for children and child care, sex and race discrimination, crime, investment in research and development, the economic value of life and time. Prerequisite: 231 and 150 or consent of instructor. [3] Jiang. (Not currently offered)

287. European Economic Integration. Policy issues concerning economic integration in Europe, including trade, migration, income distribution, environmental quality, macroeconomic policy, and monetary union. Analysis of European Community institutions. Prerequisite: 231; corequisite: 232. FALL, SPRING. [3] Hughes Hallett.

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. SPRING. [3] Ahlin.

291a–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. FALL, SPRING. [Variable credit: 1–3 each semester, or 1–6 for honors candidates; not to exceed 12 overall for honors candidates or 6 overall for other students] Staff.

292a–292b. Senior Thesis. Limited to and required of all candidates for honors. FALL, SPRING. [Variable credit: 1–3 each semester] Staff.

295a–295b. Honors Seminar. Discussion of selected topics and senior thesis research. Open only to seniors in the honors program. [1–1] Margo.

300. Selected Topics in Mathematics for Economists. [3]

301. Microeconomic Theory. [3]

302. Macroeconomic Theory. [3]

304a–304b. Microeconomic Theory. [3–3]

305a–305b. Macroeconomic Theory. [3–3]

306. Statistical Analysis. (M.A. Level) [3]

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- 307. Statistical Analysis.** [3]
- 308. Econometrics.** (M.A. Level) [3]
- 309. Econometrics.** [3]
- 312a–312b. Health Economics.** [3–3]
- 316. International Trade Theory.** [3]
- 317. International Monetary Economics.** [3]
- 320a–320b. Seminar in Organization and Control of Industry.** [3–3]
- 329a–329b. Labor Economics.** [3–3]
- 331. Seminar in Economic Analysis.** [3]
- 332. Theory of Money and Finance.** [3]
- 349a–349b. Reading Course.** [Variable credit: 1–3 each semester]
- 350a–b. Independent Study in Research.** [3]
- 353. Project Evaluation.** [3]
- 354a. Public Finance Theory.** [3]
- 354b. Public Finance Seminar.** [3]
- 355a–b. Seminar in Research on Economic Development.** [3]
- 357. International Trade and Economic Development.** [3]
- 358a–358b. Policy Issues in Developing Economies.** [3–3]
- 360. Agricultural and Economic Development.** [3]
- 364. Economic Fluctuations and Stabilization Policy.** [3]
- 366a. Topics in Economic History: Microeconomic.** [3]
- 366b. Topics in Economic History: Macroeconomic.** [3]
- 370. Econometric Theory.** [3]
- 371. An Introduction to Economic History.** [3]
- 373. Time Series Econometrics.** [3]
- 376. Topics in Advanced Mathematical Economics.** [3]
- 379. Seminar in Urban Economics.** [3]
- 383. Advanced Economics of Natural Resources and the Environment.** [3]
- 388a–388b. Development and Growth.** [3]
- 398. Workshop on Economics.** [3]

Financial Economics

- 140. Accounting.** A survey of financial accounting. FALL, SPRING. [3] Clark.
- 220. Managerial Accounting.** A survey of topics in managerial accounting. Designed for the student of general business administration rather than the student interested in professional accounting. Prerequisite: 140. No credit for graduate students. FALL, SPRING. [3] Clark, Staff.

240. Corporate Finance. Investment and financial decisions faced by firms. Theoretical basis of corporate decision-making. Review of various accounting documents and the alternative objectives of the firm, its management, and its owners. Study of the attributes of the firm that affect market value. How the firm's decisions about investing in assets and methods used to finance these investments affect firm value. Prerequisite: 140 and Economics 150. FALL, SPRING. [3] Damon, Rousseau.

259a–259b. Special Topics in Financial Economics. Topics as announced in the *Schedule of Courses*. FALL, SPRING. [3] Staff.

261. Investment Analysis. Investment principles and practices. Emphasis on security analysis to develop techniques and standards of investment appraisal. Principles of portfolio analysis. The forecasting problem in meeting portfolio needs of individuals and institutions. Special studies to develop capacity for investigating and reporting. Prerequisite: Economics 150 and 240. SPRING. [3] Staff.

275. Financial Management. Analysis of cases representing capital budgeting, forecasting cash flow, risk assessment, capital structure, mergers and acquisitions. Seminar. Prerequisite: 240. SPRING. [3] Damon.

291a–b. 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 director of undergraduate studies. No credit for graduate students. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 6 overall] Staff.

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 hours of course work: 9 hours in an economic history core, and an additional 18 hours in economics and 18 in history.

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, 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 hours)

Three of the following courses, one of which must be an economics course numbered above 250:

HIST 181 Economic History of Medieval and Early Modern Europe, HIST 252, HIST 291, ECON 226, ECON 262, ECON 266, ECON 271. Note: ECON 231 is a prerequisite for ECON 262, 266 and 271.

ECONOMICS (18 hours)

ECON 100, 101, 150 (or both MATH 218 and 219), 231, 232; one economics course numbered above 250 not included in the economic history core.

HISTORY (18 hours)

Two of the following: 100, 101, 154, 155, 157, 160, 161, 170, 171; HIST 295 Undergraduate Seminar in History; three electives numbered above 171 not included in the economic history core.

HONORS PROGRAM (9 more hours)

54 hours: students will take the 4-course honors sequence, HIST 297, 298a–b, 299; they will not be required to take HIST 295, though they may enroll for 295 as an elective. They will write an interdisciplinary thesis under the direction of an adviser from each department.

English

CHAIR Jay Clayton

DIRECTOR OF UNDERGRADUATE STUDIES Roy K. Gottfried

DIRECTOR OF GRADUATE STUDIES Bridget Orr, Acting

DIRECTOR OF EXPOSITORY WRITING Mark A. Wollaeger

PROFESSORS EMERITI R. Chris Hassel Jr., Walter L. Sullivan, Harold Lerow Weatherby Jr.

PROFESSORS Vereen M. Bell, Jay Clayton, Thadious M. Davis, Joan Dayan, Paul Elledge, Lynn E. Enterline, Sam B. Girgus, Roy K. Gottfried, John Halperin, Mark Jarman, Michael Kreyling, Vera Kutzinski, Jonathan Lamb, Leah S. Marcus, Dana Nelson, John F. Plummer III, Cecelia Tichi

ASSOCIATE PROFESSORS Kate Daniels, Carolyn Dever, Tony Earley, Teresa A. Goddu,

Dennis D. Kezar Jr., Bridget Orr, Mark Schoenfield, Kathryn Schwarz, Mark A. Wollaeger

ASSISTANT PROFESSORS Tina Chen, Sean X. Goudie, Charles LaPorte, Ellen Levy,

Lorraine Lopez, Collette Moore, Deak Nabers, Shawn Salvant, Paul Young

SENIOR LECTURER Roger Moore

WRITER IN RESIDENCE Peter Guralnick

1 WITH three distinctive programs, the Department of English allows individual students, in consultation with faculty advisers, to personalize their studies while acquiring the breadth of knowledge and skills of the traditional English major. The curriculum provides extensive courses in the history of British and American literature, in Anglophone literatures from 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 ever-widening 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 in the major are especially valued; as background for advanced training in professional schools (law, medicine, journalism, and business, for example); and for postgraduate work in literature. But the department also regards its goals as helping students become readers of literature and culture throughout their lives.

The Vanderbilt in England program, the Humanities in London program, and other overseas programs 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*, a biweekly newspaper; *Versus*, a monthly magazine; and the *Vanderbilt Review*, a distinguished collection of creative writing.

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. 112W or 118W is required and is prerequisite to upper-division courses.
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 concentrate on developing their creative writing abilities while acquiring an overview of English literature. 30 total hours including:

1. 112W or 118W is required and is prerequisite to upper-division courses.
2. 12 hours of creative writing courses from at least two different genres: 200, 201, 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. 112W or 118W is required and is prerequisite to upper-division courses.
2. 18 hours of course work concentrated in a particular period (e.g.,

nineteenth-century American or the Enlightenment), genre or movement (e.g., the novel, romanticism), 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 selected concentration. Specific courses are selected and contracted for, in writing, at the time of the declaration of the major in consultation with the student's adviser, who can make available samples of previous contracts as well as discuss appropriate courses in other departments.

3. 9 hours in literature before 1800 and 3 hours in Ethnic or non-Western literature. All of these courses may count towards 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:

Students should take English 112W, "Introduction to Poetry" or English 118W, "Literary and Cultural Analysis" during the freshman or sophomore year. The survey courses, 208a–208b and 211, 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.

The courses that fulfill the Early period requirement (literature before 1800) include 208a, 209a–209b, 210, 220, 221, 230, 240, 248, 249, 250, 251, 252a, 252b, 272e, 273e, 274e, 280e, 282, 288e, 289 (as appropriate), 295e, 296a, and Comparative Literature 224, 285.

Courses that meet the Ethnic and non-Western requirement include 263, 271, 275, 276, 277, 278, 272g, 273g, 274g, 280g, 288g, 289 (as appropriate), and 295g. In addition, other courses may occasionally fulfill this requirement; these will be announced in the *Schedule of Courses* and on the department Web site.

With the exception of 112W and 118W, 100-level courses do not count toward the major. All 200-level courses (except 290b) count towards the major. English 272, 273, 274, 288, and 295 may be repeated for credit when the topics are different. One course from another department, appropriate to the student's course of study, may be counted towards 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 in other departments.

Please consult the *Schedule of Courses* or departmental Web site for sections of 272, 273, 274, 280, 288, and 295 that fulfill specific area requirements.

Detailed descriptions of courses may be accessed from the Department of English Web site and are also available in the department.

Majors are strongly urged to consult their advisers during registration.

Honors Program in English

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 (if appropriate for a particular honors thesis, a graduate seminar or a seminar in a study-abroad program may be substituted for one honors seminar); (b) 3 hours of 290a; (c) maintain at least a 3.25 grade point average overall and 3.5 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. Full completion of all requirements for Honors will entail 33 (thirty-three) hours. Exceptional achievement on the thesis will earn High Honors. Majors who wish to apply to the honors program must be within 6 hours of completing all CPLE requirements, must have made reasonable progress toward the major in English, and must have at least a 3.25 grade point average overall and 3.5 in the major. Applications are accepted in March 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 limited to fifteen students and are open to any student beyond the freshman year who has completed the College writing requirement and who has earned at least a 3.25 grade point average. Students in the junior year are especially encouraged to enroll in honors sections in advance of applying to the program.

Program of Concentration in English and History

This is an interdisciplinary program split between English and history that provides a more focused program of study while requiring fewer credit hours (36 hours) than a double major in the two fields (60–66 hours). The program also 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 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 112W, 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.

100W. Composition. For students who need to improve their writing. Emphasis on writing skills, with some analysis of modern nonfiction writing. FALL, SPRING. [3] Staff.

104W. Prose Fiction: Forms and Techniques. Close study of short stories and novels and written explication of these forms. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Staff.

106W. Introduction to Literary Criticism. Discussion and application of modes of critical inquiry to a variety of literary works. Not a history of criticism but a study of selected critical approaches. FALL, SPRING. [3] Staff.

109W. Literature: Forms and Techniques. Close analysis and written explication of fiction, drama, and poetry. FALL, SPRING. [3] Staff.

112W. Introduction to Poetry. Close study and criticism of representative poems. The nature of poetry and the process of literary explication. FALL, SPRING. [3] Staff.

115W. Freshman Seminar. [3]

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. FALL, SPRING. [3] Staff.

120W. Intermediate Composition. A writing course including the analysis of essays from a variety of disciplines. FALL, SPRING. [3] Staff.

122. Beginning Fiction Workshop. Introduction to the art of writing prose fiction. FALL. [3] Staff.

123. Beginning Poetry Workshop. Introduction to the art of writing poetry. FALL, SPRING. [3] Bachmann, Jarman.

200. Intermediate Nonfiction Writing. Instruction in the forms and techniques of nonfiction writing. Admission by consent of instructor. May be repeated once for credit. SPRING. [3] Earley.

201. Advanced Nonfiction Writing. Further instruction in the form and techniques of nonfiction writing. Admission by consent of instructor. May be repeated once for credit. SPRING. [3] Guralnick.

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 once for credit. FALL. [3] Lopez.

205. Advanced Fiction Workshop. Continuing instruction in fiction writing. Admission by consent of instructor. May be repeated once for credit. SPRING. [3] Earley, Lopez.

206. Intermediate Poetry Workshop. Instruction in poetry writing. Supplementary readings illustrating traditional aspects of poetry. Admission by consent of instructor. May be repeated once for credit. FALL. [3] Jarman.

207. Advanced Poetry Workshop. Continuing instruction in poetry writing. Admission by consent of instructor. May be repeated once for credit. SPRING. [3] Daniels.

208a–208b. Representative British Writers. Selections from British literature with attention to contexts and literary periods. 208a: from the beginnings to 1660. 208b: from 1660 to the present. Provides a broad background for more specialized courses and is especially useful for students considering advanced studies in literature. FALL, SPRING. [3–3] R. Moore, Gottfried.

Students may not take both 209 and 210 for credit.

209a–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. 209a is prerequisite to 209b. FALL, SPRING. [3–3] Marcus.

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. FALL, SPRING. [3] Kezar, Marcus.

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. FALL, SPRING. [3] Dicker, Kreyling.

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] (Not currently offered)

214a–214b. Literature and Intellectual History. 214a: 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. 214b: The emergence of modern consciousness in the nineteenth and twentieth centuries. SPRING. [3] Bell, Salvant.

218. Words and Music. An investigation of works of literature that have inspired musical settings and the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical background assumed. SPRING. [3] Jarman/Rose.

220. Chaucer. Study of *The Canterbury Tales* and Chaucer's world. FALL. [3] Plummer.

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] (Not currently offered)

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] (Not currently offered)

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. FALL. [3] Halperin.

232a–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. 232a: emphasizes writers before 1945; 232b: emphasizes writers after 1945. SPRING. [3–3] Bell, Chen, Clayton.

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] (Not currently offered)

235. Contemporary British Fiction. The novel and the short story in Great Britain since World War II. [3] (Not currently offered)

240. The History of the English Language. The development of English syntax. History of the English vocabulary: word formation, borrowing, semantic change, and meter. FALL. [3] C. Moore.

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. SPRING. [3] Salvant.

244. Critical Theory. Major theoretical approaches that have shaped critical discourse, the practices of reading, and the relation of literature and culture. [3] (Not currently offered)

246. Feminist Theory. An introduction to feminist theory. Topics include crosscultural 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] (Not currently offered)

248. Sixteenth Century. Prose and poetry of the sixteenth century. Emphasis on Spenser and his contemporaries. [3] (Not currently offered)

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] (Not currently offered)

250. English Renaissance: The Drama. English drama, exclusive of Shakespeare, from 1550–1642: Marlowe, Jonson, Webster, and others. [3] (Not currently offered)

251. Milton. The early English poems; *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*; the major prose. [3] (Not currently offered)

252a–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. 252a: earlier writers; 252b: later writers. FALL. [3–3] Lamb.

254a–254b. The Romantic Period. Prose and poetry of the Wordsworths, the Shelleys, Byron, Keats, and others. SPRING. [3–3] Elledge.

255. The Victorian Period. Works of Tennyson, Browning, Arnold, Hardy, and others. FALL, SPRING. [3] Halperin, LaPorte.

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. FALL. [3] Bell.

258. Contemporary British and American Poetry: Auden and After. Poetry in English from the 1930s to the present. Poets studied vary at discretion of instructor. [3] (Not currently offered)

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] (Not currently offered)

261. Forms of Autobiography. Selected texts of autobiographical discourse from St. Augustine through the modern period. FALL. [3] Salvant.

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. SPRING. [3] Nabers.

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. [3] (Not currently offered)

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. SPRING. [3] Gottfried.

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. SPRING. [3] Girgus.

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] (Not currently offered)

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] (Not currently offered)

268a. America on Film: Art and Ideology. American culture and character through film, film theory, and literature. FALL. [3] Girgus.

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] (Not currently offered)

269. Special Topics in Film. Theory and practice of cinema as an aesthetic and cultural form. [May be repeated once for credit if there is no duplication of topic.] SPRING. [3] Girgus.

270. Reading Film. The rhetoric of narrative film, in light of both technical and cultural issues; its evolution through American film genres from *Birth of a Nation* to the present. [3] (Not currently offered)

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] (Not currently offered)

272. Movements in Literature. Studies in intellectual currents that create a group or school of writers within a historical period. FALL, SPRING. [3] Davis, Goudie, Lamb, R. Moore, Wollaeger.

273. Problems in Literature. Studies in common themes, issues, or motifs across several historical periods. SPRING. [3] Chen, Goudie, Halperin.

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. FALL, SPRING. [3] Halperin.

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] (Not currently offered)

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] (Not currently offered)

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] (Not currently offered)

278. Colonial and Post-Colonial Literature. Literature from countries colonized by Europe from eighteenth to twentieth century. Examines implications of colonial encounter and formation of "post-colonial" culture and such issues as language, agency, gender roles, and relation between power and narrative. Such authors as Forster, Coetzee, Okri, Tagore, Chatterjee, Kincaid, Rushdie, Soyinka. FALL. [3] Marcus.

279g. 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] (Not currently offered)

280. Workshop in English and History. (Also listed as History 244) Team-taught by a historian and an interdisciplinary scholar. Explores intersection of disciplines through close examination of texts in historical context. Topics vary; course may be taken more than once. Preference to students majoring in the English-History program. SPRING. [3] Kreyling.

281. Interdisciplinary Workshop. Team taught by a literary scholar and a member of another discipline. Explores intersection of disciplines through close examination of texts from different disciplinary perspectives. Topics vary; course may be taken more than once. [3] (Not currently offered)

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. SPRING. [3] Plummer.

284. The Comic Novel. Novels in the European tradition of humorous writing, including works by Rabelais, Cervantes, Fielding, Dickens, Joyce, and Amis. [3] (Not currently offered)

286a–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. 286a emphasizes American drama; 286b emphasizes British and world drama. [3–3] (Not currently offered)

288. Special Topics in English and American Literature. Topics offered vary and are cited each semester in the *Schedule of Courses*. FALL, SPRING. [3] Orr, Tichi.

289a–289b–289e–289g. 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 289 rolls. FALL, SPRING. [Variable credit: 1–3 each semester. Limit of 6 hours total for English majors] Staff.

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. FALL. [3] Nabers.

290b. Honors Thesis. Prerequisite: 290a. SPRING. [3] Nabers.

295. Undergraduate Seminar. Advanced reading and writing in a particular area of literature. Normally limited to juniors and seniors with preference given to English majors. [3] (Not currently offered)

296a. Anglo-Saxon Language and Literature. The study of the Old English language, selected historical and literary prose, and one or two short heroic poems. [3] (Not currently offered)

301. Seminar in Middle English Literature. [4]

302. Seminar in Chaucer. [4]

306. Seminar in Sixteenth-Century Literature. [4]

310. Seminar in Shakespeare. [4]

312. Seminar in Seventeenth-Century Literature. [4]

314. Seminar, 1660–1800. [4]

316. Seminar in Romantic Prose and Poetry. [4]

318. Seminar in Victorian Prose and Poetry. [4]

320. Studies in American Literature. [4]

321. Studies in Southern Literature. [4]

325. Seminar in Modern British and American Literature. [4]

330. Seminar in the Enlightenment and Its Literary Connections. [4]

337a. Introduction to Literary Theory. [4]

337b. Special Topics in Literary Theory. [4]

350. Special Problems in English and American Literature. [1–4]

355. Special Topics in English and American Literature. [4]

371. Teaching Composition and Literature. [4]

372. Teaching College Composition. [1]

English and History

The interdisciplinary concentration in English and history offers students the opportunity to integrate literary and historical studies in a sustained and systematic way. Students interested in the areas of intersection and cross-fertilization between these two fields have a variety of options in the English and History concentration. Examples of such areas of intersection would include:

(a) the works of a particular writer, coupled with courses that explore the social and cultural context reflected in those works (for example: Shakespeare and Early-Modern England).

(b) an exploration of a particular literary genre, coupled with courses on one or more of the social and cultural contexts in which that genre flourished (for example: folklore and Appalachia).

(c) a study of a major thematic area of literary production, coupled with courses about the social and cultural contexts germane to that theme (for example: literary treatments of race and the shaping of Caribbean cultures).

(d) a study of a particular historical era or cultural milieu, coupled with courses about the literary production associated with that era or milieu (for example: the Great Depression and American literature of the 1930s).

Each student designs a specialized program and develops a contract of courses totaling 36 hours. The program may be chronological (for example, medieval, early modern, or modern), geographical (for example, American, British, or Caribbean), or topical (for example, gender, power, or race). The contract must be approved by the director of undergraduate studies in both English and History.

Course work for the major is a total of 36 hours, distributed as follows:

CORE REQUIREMENTS (9 hours)

1. English 112W or 118W (3 hours).

Note: English 112W or 118W is a prerequisite to upper-division courses in English.

2. History 200 (3 hours).

Note: History 200 is the foundation course for the major in History.

3. English 280/History 244. Workshop in English and History (3 hours).

Note: Team-taught by a historian and a literary scholar, this course explores the intersection of disciplines through close examination of texts in historical context, building the analytical and expository skills required for sustained interdisciplinary studies. Topics vary from semester to semester, and may include such subjects as "Early Modern Women," "The Renaissance in England and Italy," "Faulkner and Southern History," or "Race and Colonialism in Caribbean Literature."

Since topics vary, the Workshop in English and History may be taken more than once; up to six hours will count for the concentration in English and History. When the program includes 6 hours of English 280/History 244, 3 of those hours will substitute for 3 hours of electives in either English or History. Preference to students majoring in the English and History program.

ELECTIVES (27 hours)

4. Either 12 hours in History and 15 in English, or 15 hours in History and 12 in English. All English electives must be at the 200 level. History electives may be at the 100 level or 200 level.

European Studies

DIRECTOR Joel Harrington

Affiliated Faculty

PROFESSORS Vereen Bell (English), James Booth (Political Science), Robert Driskill (Economics), Paul Elledge (English), Lynn E. Enterline (English), James A. Epstein (History), Leonard Folgarait (Art and Art History), Edward H. Friedman (Spanish and Portuguese), Marc Froment-Meurice (French and Italian), Lenn E. Goodman (Philosophy), Roy K. Gottfried (English), George J. Graham Jr. (Political Science), John Halperin (English), M. Donald Hancock (Political Science), Mark Jarman (English), Dale A. Johnson (Divinity School), John Lachs (Philosophy), Andrea Maneschi (Economics), Leah S. Marcus (English), John A. McCarthy (Germanic and Slavic), Luigi Monga (French and Italian), John F. Plummer III (English), Philip D. Rasico (Spanish and Portuguese), James Lee Ray (Political Science), Thomas A. Schwartz (History), Dieter H. O. Sevin (Germanic and Slavic), Helmut W. Smith (History), Henry A. Teloh (Philosophy), Patricia A. Ward (French and Italian), David C. Wood (Philosophy)

ASSOCIATE PROFESSORS Michael D. Bess (History), Victoria Burrus (Spanish and Portuguese), William Caferro (History), Cynthia Cyrus (Blair School), Carolyn Dever (English), Idit Dobbs-Weinstein (Philosophy), Robert R. Ehman (Philosophy), William P. Franke (French and Italian), Joel F. Harrington (History), Gregg M. Horowitz (Philosophy), Dennis D. Kezar (English), Kassian A. Kovalcheck Jr. (Communication Studies), Konstantin Kustanovich (Germanic and Slavic), David A. Lowe (Germanic and Slavic), Thomas A. J. McGinn (Classical Studies), Robert L. Mode (Art and Art History), Anthère Nzabatsinda (French and Italian), Ljubica D. Popovich (Art and Art History), Matthew Ramsey (History), Michael A. Rose (Blair School), Kathryn Schwarz (English), Virginia M. Scott (French and Italian), Jeffrey S. Tlumak (Philosophy), Barbara Tsakirgis (Classical Studies), Holly A. Tucker (French and Italian), Francis W. Wcislo (History), Meike G. J. Werner (Germanic and Slavic), Mark A. Wollaeger (English), Andrés Zamora (Spanish and Portuguese)

VISITING ASSOCIATE PROFESSOR Matthias Schulz (History)

ASSISTANT PROFESSORS M. Fráncille Bergquist (Spanish and Portuguese), Joy Calico (Blair School), Katherine B. Crawford (History), María José de la Fuente (Spanish and Portuguese), Sara P. Eigen (Germanic and Slavic), Carlos Jáuregui (Spanish and Portuguese), Angela H. Lin (Germanic and Slavic), Diane Perpich (Philosophy)

SENIOR LECTURERS Tracy Barrett (French and Italian), Elena Olazagasti-Segovia (Spanish and Portuguese), Margaret Setje-Eilers (Germanic and Slavic)

1 THE Center for European Studies offers an interdisciplinary major in modern European studies, designed for students who want to broaden their awareness of the European experience and to prepare for advanced study and international careers.

European studies majors are encouraged to consider participation in one of the Vanderbilt study programs in Europe and residence in the International House on campus. Special activities of the center include lectures by European scholars and informal faculty-student luncheon seminars.

Program of Concentration in Modern European Studies

The interdisciplinary major consists of 42 hours of course work, to be distributed among various disciplines as indicated below. Emphasis is on political, cultural, economic, and related trends or events since the French Revolution. Students may elect to concentrate on a thematic or comparative topic (such as culture and society during a particular epoch), a regional or subregional topic (such as European integration or the Iberian peninsula), or the culture and society of a particular nation (such as France, Germany, Italy, England, Spain, Portugal, or Russia). Students select a particular focus and specific courses that will fulfill requirements of the major in consultation with the director of the Center for European Studies.

Requirements for the interdisciplinary major in modern European studies include completion of:

1. European Studies 201, European Society and Culture.

2. European Studies 250, Senior Tutorial. Students pursuing honors in modern European studies are required to take European Studies 299a–299b in lieu of European Studies 250. This exception is explained in the paragraph describing the honors program below.

3. Nine hours in European history, to be selected from the following list.

EUROPEAN STUDIES: 260, European Cities.

HISTORY: 100, History of Western Civilization to 1700; 101, History of Western Civilization since 1700; 115, Freshman seminar (with appropriate topic); 115W, Freshman seminar (with appropriate topic); 180, History of Christian Traditions; 184, Nazi Germany and the Holocaust; 188, History of World War II; 202, Science and Society after the Enlightenment; 204, History of Medicine, 1750 to the Present; 212, Medieval Europe, 300–1000; 213, Medieval Europe, 1000–1350; 214, Europe in the Age of the Renaissance; 215, Europe in the Age of the Reformation, 1500–1648; 216, Europe in the Age of Absolutism, 1648–1789; 218, Europe in the Age of Revolution, 1789–1815; 220, Europe in the Nineteenth Century; 225, Europe from World War I to World War II; 226, Europe Since 1945; 227, Intellectual History of Early Modern Europe; 228, Intellectual History of Modern Europe; 230, European Unification since 1945; 231, History of Germany in the Twentieth Century; 232, History of Modern Italy; 234, History of France from the Renaissance to the Enlightenment; 235, Modern France; 237, Russia: Tsardom to Empire; 238, Russia: Old Regime to Revolution; 239, Russia: The U.S.S.R. and Afterward; 240, Medieval and Early Modern England; 242, England under the Tudors; 243, Britain's Century of Revolution; 245, Victorian England; 294, Selected Topics (with appropriate topic); 295, Undergraduate Seminar in History (with appropriate topic); 296, Independent Study.

4. Nine hours in other social science fields, to be selected from the following list.

EUROPEAN STUDIES: 240, Topics in European Studies; 260, European Cities.

ECONOMICS: 249a–249b, Selected Topics (with appropriate topic); 262, History of Economic Thought; 263, International Trade; 264, Open Economy Macroeconomics; 271, Economic History of Europe; 287, European Economic Integration; 291a–291b, Independent Study in Economics (with appropriate topic).

POLITICAL SCIENCE: 101, Introduction to Comparative Politics; 102, Introduction to International Politics; 103, Introduction to Political Theory; 203, Modern Political Philosophy; 205, Modern Political Ideologies; 206, Foundations of Marxism; 207, Liberalism and Its Critics; 210, West European Politics; 211, The European Union; 212, Politics in Russia and Successor States; 213, Democratization and Political Development; 218, Social Reform and Revolution; 220, Crisis Diplomacy; 221, Causes of War; 225, International Political Economy; 226, International Law and Organization; 227, Economics and Foreign Policy; 231, Contemporary Issues in Europe; 232, Evolution in French Foreign Policy under the Fifth Republic; 287–288, Seminars in Selected Topics (with appropriate topic); 289a–289b, Independent Research.

SOCIOLOGY: 291, Structure of Modern Spanish Society; 294, Seminars in Selected Topics; 299, Independent Research and Writing.

5. Nine hours in the humanities, to be selected from the following list.

ART AND ART HISTORY: 110–111, History of Western Art; 115, 115W, Freshman Seminar (with appropriate topic); 210, Early Christian and Byzantine Art; 211, Medieval Art; 212, Northern Renaissance; 218, Italian Renaissance Art to 1500; 219, Italian Renaissance Art after 1500; 220, Renaissance-Baroque Architecture; 221, Baroque-Rococo Art; 222, British Art; 230–231, Nineteenth- and Twentieth-Century European Art; 232, Modern Architecture; 237, History of Spanish Art up to the Seventeenth Century; 238, History of Spanish Art from the Seventeenth Century to the Present; 272a–272b, Survey of Film History; 289, Independent Research (with appropriate topic); 294, Selected Topics (with appropriate topic).

COMMUNICATION STUDIES: 225, History and Criticism of British Public Address; 294, Selected Topics in Communication Studies (with appropriate topic).

EUROPEAN STUDIES: 225, European Realism; 240, Topics in European Studies; 260, European Cities.

ENGLISH: 115W, Freshman Seminar (with appropriate topic); 209a–209b, Shakespeare; 210, Shakespeare: Representative Selections; 221, Medieval Literature; 230, The Eighteenth-Century English Novel; 231, The Nineteenth-Century English Novel; 233, The Modern British Novel; 235, Contemporary British Fiction; 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, Movements in Literature (with appropriate topic); 273, Problems in Literature (with appropriate topic); 274, Major Figures in Literature (with appropriate topic); 282, The Bible in Literature; 283, Satire; 286a–286b, Twentieth Century Drama (with appropriate topic); 288, Special Topics in English and American Literature (with appropriate topic); 289a–289b, Independent Study (with appropriate topic); 295, Undergraduate Seminar (with appropriate topic).

FRENCH: 201, French Composition and Grammar; 204, French for Business; 207–208, French Civilization; 209, Contemporary France; 210, French and Francophone Cinema; 214, Advanced Conversational French; 215, La Provence; 216, Summer Study Tour; 218, The Contemporary Press and Media; 220, Introduction to French Literature; 226, Advanced French Grammar; 232, French Poetry from Villon to Malherbe; 234, Medieval French Literature; 235, Farce and Comedy; 236, Tragedy and *drame*; 237, The Early Modern Novel; 238, The Twentieth-Century Novel; 240, Rabelais, Montaigne, and Their Times; 251, Provence and the French Novel; 253, Literature of the Fantastic; 255, French Feminist Thought: Literary and Critical; 256, Contemporary French Philosophical Thought; 260, Enlightenment and Revolution; 261, Age of Louis XIV; 262, The Avant-Garde in Modern French Theatre; 265,

From Romanticism to Symbolism; 267, Twentieth-Century French Literature; 270, The French Literary Tradition; 289, Independent Study; 294a–294b, Special Topics in French Literature; 295, Special Topics in French Language and Civilization.

GERMAN: 201, Introduction to German Studies; 213–214, German Conversation and Composition; 216, Business German; 220, Advanced Grammar; 221–222, German Culture and Literature; 235, German Romanticism; 237, Women and Modernity; 248, German Lyric Poetry; 262, German Literature of the Middle Ages; 263, The Age of Goethe; 265, Twentieth-Century Drama; 266, Nineteenth-Century Prose; 267, German Novel of the Twentieth Century; 268, Modern German Short Story; 269, Writing under Censorship; 270, German Film; 271, Women at the Margins: German-Jewish Women Writers; 273, Nazi Cinema: The Manipulation of Mass Culture; 280, Murder and Mayhem: The *Sturm und Drang*; 289a–289b, Independent Readings; 294a–294b, Selected Topics.

ITALIAN: 201, Grammar and Composition; 214, Spoken Italian; 220, Introduction to Italian Literature; 230, Italian Civilization; 231, Readings from Dante's *Divina Commedia*; 232, Literature of the Middle Ages and Renaissance; 240, Modern Italian Cinema; 289, Independent Study.

MUSIC LITERATURE: 115, Freshman Seminar (with appropriate topic); 140, Introduction to Music Literature; 141, Survey of Music Literature; 144, Survey of Orchestral Music; 145, Survey of Choral Music; 183, Music, the Arts, and Ideas; 186, Women and Music; 242, Music of the Middle Ages and Renaissance; 243, Music of the Baroque and Classic Eras; 244, Music of the Romantic and Modern Eras; 247, Opera.

PHILOSOPHY: 211, Medieval Philosophy; 212, Modern Philosophy; 213, Contemporary Philosophy; 220, Immanuel Kant; 224, Existential Philosophy; 228, Nineteenth-Century Philosophy; 231, Philosophy of History; 247, Kierkegaard and Nietzsche; 252, Political and Social Philosophy; 253, Philosophy and Economic Policies; 254, Modern Philosophies of Law; 258, Contemporary Political Philosophy; 260, Twentieth-Century Continental Philosophy; 289a–289b, Independent Readings; 294a–294b, Selected Topics.

PORTUGUESE: 200, Intermediate Portuguese; 223, Culture and Civilization of the Portuguese-Speaking World; 289, Independent Study (with appropriate topic); 294, Special Topics in Portuguese Language, Literature, or Civilization (with appropriate topic).

RELIGIOUS STUDIES: 115, 115W, Freshman Seminar (with appropriate topic); 202, Natural Science and the Religious Life; 214, Modern European Christianity; 215, Formation of the Catholic Tradition; 216, Christianity in the Reformation Era; 228, Judaism and Modernity; 229, The Holocaust: Its Meaning and Implications.

RUSSIAN: 203–204, Second-Year Russian; 213–214, Intermediate Russian Conversation; 221–222, Survey of Russian Literature in English Translation; 223–224, Composition and Conversation; 231, Jews in Russian Culture: Survival and Identity; 232, The Evil Empire: Stalin's Russia; 257–258, Advanced Composition and Conversation; 289a–289b, Independent Readings; 294a–294b, Selected Topics.

SOCIOLOGY: 291, Structure of Modern Spanish Society: An Introduction.

SPANISH: 201, Intermediate Spanish Writing; 202, Spanish for Oral Communication through Cultural Topics; 206, Spanish for Business and Economics; 207, Advanced Conversation; 208, Advanced Conversation through Cultural Issues in Film; 209, The Spanish Language; 212, Advanced Grammar and Stylistics; 220, The Languages of Spain; 221, Spanish Civilization; 226, Film and Recent Cultural Trends in Spain; 230, Development of Lyric Poetry; 231, The Origins of Spanish Literature; 232, Literature of the Spanish Golden Age; 233, Modern Spanish Literature; 234, Contemporary Spanish Literature; 237, Contemporary Lyric Poetry; 239, Development of the Novel; 240, The Contemporary Novel; 246,

Don Quixote; 251, Development of Drama; 260, Development of the Short Story; 289, Independent Study; 294, Special Topics.

6. One of the following language options:
 - a. 6 hours of course work beyond the intermediate level in one European language;
 - b. course work through the intermediate level in two European languages;
 - c. demonstration of proficiency equivalent to either of the preceding options; or
 - d. 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).

Independent study and research courses and selected topics courses should have topics appropriate to the student's course of study.

Students majoring in modern European studies are urged to satisfy the 9-hour major requirements in the social sciences and humanities by completing courses in the area of their special interest. The remainder of the 42 hours required for the major may be selected from the preceding course lists or from among approved courses taken abroad. Normally, no more than 9 hours of work in 100-level courses may be counted toward the major; however, students offering two languages under option (b) above may also count toward the major the intermediate-level courses in one of those languages.

Students seeking a second major may count a maximum of 6 hours of course work to meet requirements in both majors.

Programs of Concentration in French and European Studies, German Studies, Russian and European Studies, Spanish and European Studies, and Spanish, Portuguese, and European Studies

The Center for European Studies also offers joint majors in French and European Studies, German Studies, Russian and European Studies, Spanish and European Studies, and Spanish, Portuguese, and European Studies with the Department of French and Italian, the Department of Germanic and Slavic Languages, and the Department of Spanish and Portuguese, respectively. For requirements, see French and Italian, Germanic and Slavic Languages, and Spanish and Portuguese in this catalog.

Honors Program

The Center for European Studies offers qualified majors the option of completing a portion of their major requirements in an honors program. Students have the opportunity to engage in interdisciplinary reading, consultations with faculty, and research on the central topic or theme of

their program of concentration. To be admitted to the program, students must have obtained a minimum grade point average of 3.000 and must submit a short description of their proposed program of study to the European Studies Executive Committee.

Requirements of the honors program are as follows: completion of 12 hours of independent research, including European Studies 289a–289b, normally taken in the junior year, and 299a–299b, to be taken in the senior year; completion of a senior thesis in the context of 299a–299b; and completion of an honors comprehensive written and oral examination in the second semester of the senior year.

Information concerning the honors program is available from the director of the Center for European Studies. College regulations governing honors programs may be found in this catalog under Honors Programs, Special Programs for Arts and Science.

Minor in European Studies

The Center for European Studies also offers a minor in Modern European Studies. Students must choose a thematic focus and take 18 hours of approved European-content courses distributed as follows:

1. European Studies 201;
2. a minimum of 3 hours of modern European history;
3. a minimum of 3 hours of relevant work in social science; and
4. a minimum of 3 hours of relevant work in humanities.

Course selection must be approved by the director of the Center for European Studies. Neither independent study nor directed study courses may be used to satisfy requirements of the minor.

European Studies 201. European Society and Culture. An interdisciplinary survey of European society, culture, and politics since 1900. SPRING. [3] Schulz.

European Studies 225. European Realism. Analysis of representative nineteenth-century novels that gave rise to current theories of realism. Balzac, Dickens, Clarín, Galdós, and Dostoevsky. [3] McCarthy (Germanic and Slavic Studies). (Not currently offered)

European Studies 240. Topics in European Studies. Topics of special interest on modern European culture or society, as announced in the *Schedule of Courses*. May be repeated for credit when topics vary. FALL, SPRING. [3] Staff.

European Studies 250. Senior Tutorial. Supervised readings, joint discussions, and independent research on a modern European topic to be selected in consultation with the director of the Center for European Studies. Open only to juniors and seniors. FALL, SPRING. [3] Staff.

European Studies 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] Staff.

European Studies 289a–289b. Independent Readings and/or Research. Independent readings and/or research on approved topics relating to modern European society and culture. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6 in 289a and 289b combined] Staff.

European Studies 299a–299b. Senior Honors Research. Open only to seniors who have been admitted to the European Studies honors program. FALL, SPRING. [3–3] Staff.

Film Studies

DIRECTOR Paul Young

Affiliated Faculty

PROFESSORS Vereen Bell (English), Jay Clayton (English), Thadious Davis (English), Lynn E. Enterline (English), Sam B. Girgus (English), Leah S. Marcus (English), Dieter H. Sevin (Germanic and Slavic Languages)

ASSOCIATE PROFESSORS Jon Hallquist (Communication Studies and Theatre), Terryll Hallquist (Theatre), Gregg M. Horowitz (Philosophy), Yoshikuni Igarashi (History), Dennis D. Kezar (English), Konstantin Kustanovich (Germanic and Slavic Languages), John Sloop (Communication Studies and Theatre), Mark A. Wollaeger (English)

ASSISTANT PROFESSORS Jason R. Borge (Spanish and Portuguese), Sara L. Eigen (Germanic and Slavic Languages), Stanley Link (Music), Drayton Nabers III (English), Emanuelle Oliveira (Portuguese), Lynn T. Ramey (French), Paul Young (English)

LECTURERS William Akers (Communication Studies), Kathy Conkwright (Film Studies), Jay Geller (Religious Studies), David Hinton (Art History), Peter Lorge (History), Margaret Setje-Eilers (Germanic and Slavic Languages)

1 FILM Studies at Vanderbilt is an interdisciplinary major and minor of courses and projects for students interested in the culture, history, aesthetics, theory, and production of cinema. The program is designed to help students learn about and use film as a modern aesthetic form and a cultural force. Film at Vanderbilt functions in an intellectual and creative environment that works to bridge the humanities and social sciences. Art and documentary instrument, film advances the humanities' engagement with timeless issues, but film also epitomizes the social science effort to record and investigate. Both the study and the production of film at Vanderbilt encourage new ways of thinking and looking. However, Vanderbilt film study and film production also develop traditional learning skills of critical thinking, systematic analysis, conceptual coherence, and organization that constitute the core of a liberal education. Students in Film Studies will take courses in film criticism and analysis, film theory, film history, film and culture, and film production. Students will become familiar with major critical, theoretical, and historical approaches including: Film Structure and Art, Gender Studies, Race and Ethnicity Studies, Cultural Studies, Psychoanalytic Theory, Critical Theory, Structuralism

and Post-structuralism. The Film Studies major concludes with a senior seminar. The program provides training, background, and experience for students interested in careers in film, media, communications, the professions, and community and social relations.

Major in Film Studies

The film major consists of 36 hours. The requirements are as follows:

CORE REQUIREMENTS (12 hours)

1. Introduction to Film Studies.
2. One course in Film Theory: Film Studies 201 (Film Theory) or Philosophy 243 (Philosophy of Film).
3. One course in Film, Culture, and Society: English 265 (Film and Modernism), English 267 (Desire in America: Literature, Cinema, and History), English 268a (America on Film: Art and Ideology), English 268b (America on Film: Performance and Culture), German 270 (German Film), German 273 (Nazi Cinema), Music 183 (Music, The Arts, and Ideas), Religious Studies 133 (Asia on Film—also listed as Film Studies 133), Spanish 226 (Film and Recent Cultural Trends in Spain).
4. One course in film practice: Music 264 (Exploring the Film Soundtrack), Theatre 170 (Introduction to Film Making), Theatre 219 (Acting I), Theatre 227 (Screenwriting), Theatre 230 (Play Direction).
5. Film Studies 290: Senior Seminar: 3 hours.

21 hours from at least three of the following disciplines:

ART AND ART HISTORY: 272a or 272b (Survey of Film History).

COMMUNICATION STUDIES: 242 (Communications, Culture, and Consciousness).

ENGLISH: 265 (Film and Modernism), 267 (Desire in America), 268a (America on Film: Art and Ideology), 268b (America on Film: Performance and Culture), 269 (Special Topics).

FRENCH: 210 (French and Francophone Film).

GERMAN: 270 (German Film), 273 (Nazi Cinema).

MUSIC: 183 (Music, The Arts, and Ideas), 264 (Exploring the Film Soundtrack).

PHILOSOPHY: 243 (Philosophy of Film).

RELIGIOUS STUDIES: 133 (Asia on Film), 229 (The Holocaust: Its Meanings and Implications)

RUSSIAN: 234 (Russian Cinema).

SPANISH: 226 (Film and Recent Cultural Trends in Spain)

THEATRE: 170 (Introduction to Film Making), 212 (Scenic Design), 213 (Lighting and Sound Design), 214 (Costume and Makeup Design), 219 (Acting I), 227 (Screenwriting), 230 (Play Direction), 271 (American Film Forms), 275 (Advanced Screenwriting), 277 (Advanced Filmmaking), 278 (Advanced Production Workshop).

Other courses related to Film Studies also may be counted as electives, subject to the approval of the director of Film Studies.

Minor in Film Studies

The film minor consists of 18 hours. The requirements are as follows:

1. Film Studies 125 (Introduction to Film Studies).
2. One course in film theory: currently, either Philosophy 243 (Philosophy of Film) or Communication Studies 242 (Communication, Culture, and Consciousness).
3. One course in film practice: currently, Theatre 170 (Introduction to Film Making), Theatre 219 (Acting I), Theatre 227 (Screenwriting), or Theatre 230 (Play Direction).

Electives

Students must select three courses from the following list:

Art and Art History: Either Art and Art History 272a or 272b

English: English 265 (Film and Modernism); English 267 (Desire in America); English 268a (America on Film: Art and Ideology); English 268b (America on Film: Performance and Culture); English 269 (Special Topics in Film)

French: French 210 (The French Cinema)

German: German 270 (German Film), 273 (Nazi Cinema)

Philosophy: Philosophy 243 (Philosophy of Film)

Religious Studies: Religious Studies 133 (Asia on Film)

Spanish: Spanish 226 (Film and Recent Cultural Trends in Spain)

Theatre: Theatre 170 (Introduction to Film Making); Theatre 219 (Acting I); Theatre 227 (Screenwriting); Theatre 230 (Play Direction); Theatre 271 (American Film Forms)

Special topics courses and graduate courses that are relevant to this minor may also be counted as electives, subject to the approval of the chair of the Film Studies Committee.

Film minors are strongly encouraged to elect a course in foreign cinema.

Film Studies 125. Introduction to Film Studies. 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. FALL. [3] Young.

Film Studies 133. Asia on Film. (Also listed as Religious Studies 133) Cinematic perspectives on Asian religion and culture, Hindu, Buddhist, Taoist, Shinto, and Confucian traditions in India, Tibet, Vietnam, China, Japan, and the U.S. Politics and significance of representation and interpretation. [3] (Not currently offered)

Film Studies 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. SPRING. [3] Young, Staff.

Film Studies 280a–280b–280c. Internship and Research. Under faculty supervision, students intern 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. FALL, SPRING, SUMMER. [Variable credit:1–9]

Film Studies 288. Special Topics in Film. Topics offered vary and are cited each semester in the *Schedule of Courses*. FALL, SPRING. [3]

Film Studies 289a–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. FALL, SPRING. [Variable credit: 1–3 each semester. Limit of 6 hours total for majors.]

Film Studies 290: Senior Seminar. Advanced reading and research in film. [3] FALL, SPRING. (Offered 2005/2006)

French and Italian

CHAIR Holly A. Tucker

DIRECTOR OF UNDERGRADUATE STUDIES Lynn Ramey

DIRECTOR OF GRADUATE STUDIES Robert Barsky

PROFESSORS EMERITI Barbara C. Bowen, Dan Church, Larry S. Crist, James S. Patty, Claude Pichois, Ruth G. Zibart

PROFESSORS Robert Barsky, Marc Froment-Meurice, Luigi Monga, Patricia A. Ward

ASSOCIATE PROFESSORS William Franke, Anthère Nzabatsinda, Virginia M. Scott,

Holly A. Tucker

ASSISTANT PROFESSORS Nathalie Debrauwere-Miller, Lynn Ramey

SENIOR LECTURERS Tracy Barrett, Nathalie Dieu-Porter, Susan Kevra, Martine Prieto,

Mary Beth Raycraft

1 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 the College Program in Liberal Education. Senior faculty members teach courses at all levels, including certain sections of first- and second-year courses. Other sections are taught by teaching fellows—selected graduate students working under the supervision of department faculty. 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 section of McTyeire International House; activities organized there are open to all interested parties.

Program of Concentration in French

Students are required to complete a minimum of 30 hours in courses numbered 201 and above, including 201, 207 or 208 or 209, 214, 220, and 270, three literature courses, and one course in language or civilization. Students placing out of 201 are required to take 226 in its place.

French 220 is prerequisite for all literature courses. A student's selection of literary courses should provide the broadest possible coverage of French literature. Courses are generally divided into those on genres (230–239), authors (240–249), themes (250–259), and literary movements (260–269). French 222 and 225 also count as literature courses for the major. 270 is reserved for seniors who have satisfied the other literature requirements. All majors are expected to consult their advisers about their choice of major courses each semester.

Students are encouraged to consider spending up to one year in the Vanderbilt in France program in Aix-en-Provence. They may earn up to 18 hours of direct credit each semester in French and other fields, including political science, philosophy, and fine arts. Courses in Aix in French literature, language, and civilization count toward the major or minor.

Honors Program in French

In addition to requirements set by the College, the following requirements must be met:

1. 36 hours in French at the 200-level or above, including the requirements for the 30-hour major.
2. One 300-level French course during the senior year; this may substitute for one 200-level course required for the major.
3. A minimum of 1 semester of study (or the summer session) at Vanderbilt in France or at an approved substitute program in a French-speaking country.
4. 3.3 grade point average in French.
5. Completion of an honors thesis, under the direction of a faculty adviser.
6. 6 hours of thesis credit under French 299a and 299b (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 in French may elect this interdisciplinary major, which requires a minimum of 42 hours of course work. A semester of study at Vanderbilt in France is required.

Course work for the major is distributed as follows:

French

French language and literature (12 hours): 201, 214, 220, and 270

French culture, history, and civilization (9 hours)—
three of the following: 207, 208, 209, 215, and 218

Two other courses in French (6 hours)

Total in French: 27 hours

European Studies

European Studies 201 and 250 (6 hours)

Political Science 287 or 288 in the version offered at Aix (3 hours)

One course selected from the list of social science courses approved for European Studies—economics, political science, sociology (3 hours)

One of the following history courses: 218, 220, 225, 226, 228, 234, 235 (3 hours)

History 236 will also count for 3 hours on the French side of the program; in this case, the student will take an elective from the list of history, social science, or humanities courses approved for European Studies.

Total in European Studies: 15 hours

Minor in French

The minor in French requires 18 hours of course work, including 201, French Composition; 214, Advanced Conversational French; 220, Introduction to French Literature; and three electives from the 200-level courses that count toward the major except 210, 216, and 289. Up to six hours of French 294 or 295 may count toward the minor with prior departmental approval. Students placing out of 201 are required to take 226 in its place. All minors are expected to consult their advisers about their choice of courses. No course in translation may count toward the minor.

Minor in Italian

The minor in Italian requires 18 hours of course work, including 201, Grammar and Composition; 214, Spoken Italian; 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 201, Grammar and Composition; 220, Introduction to Italian Literature; 230, Italian Civilization; either European Studies 201, Twentieth Century Europe, or History 232, History of Modern Europe; and two courses chosen from the following:

Art and Art History: 218, Italian Renaissance Art to 1500; 219, Italian Renaissance Art after 1500

Comparative Literature: 224, Dante's *Divine Comedy*

History: 214, Europe in the Age of the Renaissance; 232, History of Modern Italy; 233, Medieval and Renaissance Italy, 1000–1700

Italian: 231, Readings from Dante's *Divina Commedia*; 232, Literature of the Middle Ages and Renaissance; 233, The Literature of *Barocco*, *Illuminismo*, and *Romanticismo*; 235, The Literature of the *Novecento*; 239, Topics in Contemporary Italian Civilization; 240, Modern Italian Cinema

Music Literature: 243, Music of the Baroque and Classic Eras; 244, Music of the Romantic and Modern Eras; 247, Opera

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.

101a–101b. Elementary French. A communicative approach to reading, writing, listening, and speaking for students who have studied little or no French. [5–5] Staff.

102. Accelerated Elementary French. A communicative approach to reading, writing, listening, and speaking for students who have studied one to three years of French. No credit for students who have completed French 101a–101b. FALL, SPRING. [5] Staff.

103. Intermediate French. Review of French grammar with emphasis on composition, reading, and conversation. Multicultural materials of the French-speaking world. FALL, SPRING. [5] Staff.

201. French Composition and Grammar. Prerequisite: 104b or the equivalent. No graduate credit. FALL, SPRING. [3] Prieto, Tucker, Nzabatsinda.

203. Phonetics. Methodical comparison of French and English sounds. Correct formation of French sounds; oral exercises and aural training. SPRING. [3] Prieto.

204. French for Business. Specialized vocabulary of business terms, business letters, and exercises in comprehension and translation. Prerequisite: 201. SPRING. [3] Porter.

207–208. French Civilization. Cultural achievements of France within a historical and geographic context. 207: from the origins to the revolution. 208: nineteenth and twentieth centuries, Napoleon to DeGaulle. 207: FALL; 208: SPRING. [3–3] Raycraft, Ward.

209. Contemporary France. The culture of France today; social, economic, and political issues; literature and the arts. Vanderbilt in France. [3] Jourlait.

210. The 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. Students who wish the course to count toward the major or minor in French must do their writing in French. FALL (English), SPRING (French). [3] Ramey.

214. Advanced Conversational French. Emphasis on idiomatic usage and strategies for oral communication. Prerequisite: 201. FALL, SPRING. [3] Porter.

215. La Provence. Geography, history, politics, architecture, and other cultural elements of Provence. Offered regularly, each semester, in the Vanderbilt in France program. [3]

216. Summer Study Tour. Concentrates on one of several French provinces other than Provence; preparation, by readings and discussion during the session; field trips of three to four days in each province during the session; papers on one aspect of the province required. Offered each summer in the Vanderbilt in France program. SUMMER. [1]

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: 201. Offered at Vanderbilt in France. SPRING. [3] Desorgues.

220. Introduction to French Literature. Fundamental techniques for critical reading of French literature. Prerequisite: 201. FALL, SPRING. [3] Debrauwere-Miller, Prieto, Ward, Ramey.

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, Indian Ocean, and Vietnam. Prerequisite: 220. FALL. [3] Nzabatsinda.

225. French Methods of Textual Analysis. Introduction to oral *explication de texte*: methods, vocabulary, and theory. Taught in Vanderbilt in France. FALL, SPRING. [3] Staff.

226. Advanced French Grammar. A systematic review with particular attention to morphology and syntax. Prerequisite: 201 or its equivalent. SPRING. [3] Prieto.

232. French Poetry from Villon to Malherbe. French poetry of the fifteenth to seventeenth century, including Villon, Marot, the Ecole lyonnaise, the Pléiade, d'Aubigné. [3] (Not currently offered)

234. Medieval French Literature. Survey of medieval chronicles, theater, and lyric and didactic poetry, with an introduction to the philology of the language. SPRING. [3] (Not currently offered)

235. Farce and Comedy. Evolution of comic theater from the Middle Ages to the present, including satire, social commentary, and pure theater. The relationship of plays to the times in which they are produced. Prerequisite: 220. [3] (Not currently offered)

236. Tragedy and *drame*. Evolution of noncomic theatrical forms in France from the neo-classical tragedy through the *drame bourgeois*. [3] (Not currently offered)

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. [3] (Not currently offered)

238. The Twentieth-Century Novel. The novel as a genre in the context of modernity and post modernity. Readings will focus on narrative techniques. [3] (Not currently offered)

239. The African Novel. The postcolonial francophone novel of Maghreb and Subsaharan illustrating issues such as tradition and modernity, the identity of Africa, the representation of women, and the ideology of language. Recommended: 222. [3] (Not currently offered)

240. Rabelais, Montaigne, and their Times. Rabelais and Montaigne in the intellectual context of the sixteenth century: humanism, the Reformation, discovery of the New World. FALL. [3] (Not currently offered)

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 every summer in the Vanderbilt in France program. [3]

253. Literature of the Fantastic. The theme of the fantastic in nineteenth- and twentieth-century prose fiction. Critical analysis using psychological and psychoanalytic concepts. Offered in France. [3] (Not currently offered)

255. French Feminist Thought: Literary and Critical. Feminist themes in twentieth-century French literature and criticism. Authors include Beauvoir, Duras, Sarraute, Irigaray, Cixous. Prerequisite: 220. [3] Debrauwere-Miller.

256. Contemporary French Philosophical Thought. Themes and concepts of major twentieth-century philosophers and philosophical movements. Offered at Vanderbilt in France. SPRING. [3] Froment-Meurice.

260. Enlightenment and Revolution. Major writers of the eighteenth century, including Montesquieu, Voltaire, Rousseau, Diderot; literature of the Revolution. [3] Ward.

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: 220. FALL. [3] Tucker.

262. The Avant-Garde in Modern French Theater. Reactions against traditional representational theater since the mid-nineteenth century. Attempts to revive older theatrical forms as well as to create new genres. Prerequisite: 220. [3] (Not currently offered)

265. From Romanticism to Symbolism. Nineteenth-century literature through its major movements: Romanticism, Realism, Naturalism, and Symbolism. Prerequisite: 220. SPRING. [3] Froment-Meurice.

267. Twentieth-Century French Literature. Critical readings of representative works organized thematically with emphasis on their contextual and intertextual relationships. Offered in Vanderbilt in France. Prerequisite: 220. FALL. [3] Debrauwere-Miller.

269. Francophone Literature and Film of the Maghreb. Literature, film, and their cultural context in Francophone North Africa. Offered at Vanderbilt in France. FALL, SPRING. [3] Hamouda.

270. The French Literary Tradition. Critical, comparative, and historical study of texts that represent the tradition and innovations responsible for an evolving national identity. Limited to senior French majors and minors. FALL, SPRING. [3] Barsky.

287. Internship in France. Under faculty supervision, students enrolled at Vanderbilt in France gain experience through volunteer work assignments. An application and approval by the program director are required for participation in the program. A report and research paper are submitted at the end of the internship. Taken pass/fail. FALL, SPRING. [Variable hours credit: 1–2] Monchal.

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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 12 over a four-semester period]

294a. Special Topics in French Literature. Prerequisite: 220. FALL. [3]

294b. Special Topics in French Literature. Prerequisite: 220. FALL. [3]

295. Special Topics in French Language and Civilization. Prerequisite: 201. SPRING. [3]

- 299a–b. Senior Honors Thesis.** [3–3] Staff.
- 300. Introduction to Research.** [3]
- 302. History of the French Language: Medieval Period.** [3]
- 310. Foreign Language Teaching: Theory and Practice.** [3]
- 315. Seminar in French Language.** [3]
- 318. Applied French Linguistics.** [3]
- 320. Linguistics and the Study of French Literature.** [3]
- 332. Seminar: Chrétien de Troyes.** [3]
- 338. Seminar in Sixteenth-Century French Literature.** [3]
- 342. Seminar in Seventeenth-Century French Literature.** [3]
- 353. Seminar in Eighteenth-Century French Literature.** [3]
- 362. Seminar in Nineteenth-Century French Literature.** [3]
- 372. Seminar in Twentieth-Century French Literature.** [3]
- 380. French Literary Theory.** [3]
- 388. Seminar in Francophone Literature.** [3]
- 394. Special Topics in French Studies.** [3]

Italian

Students who have not studied Italian in high school should begin their studies at Vanderbilt in Italian 101.

- 101a–101b. 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. [5–5] Staff.
- 102. Intensive Elementary Italian.** An 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. No credit for students who have completed 101a–101b. SPRING. [5] Barrett.
- 103. Intermediate Italian.** Review of Italian grammar, with composition, conversation, and reading of modern Italian texts. Prerequisite: 101b or equivalent. FALL. [3] Barrett.
- 201. Grammar and Composition.** Emphasis on syntax, idiomatic expressions, and current usage to develop ability to write Italian correctly. Prerequisite: 103. SPRING. [3] Monga.
- 214. Spoken Italian.** Development of oral fluency through in-class drills, laboratory assignments, class discussions, and presentations. Listening to and transcribing tapes and preparing original presentations. Prerequisite: 103. FALL. [3] Monga.
- 220. Introduction to Italian Literature.** Critical reading of major works of Italian literature from the beginning to the present. Prerequisite: 201. SPRING. [3] Barrett.
- 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] (Not currently offered)

231. Readings from Dante's *Divina Commedia*. Examination of Dante's language and philosophical tenets through study of style, characters, and themes. [3] (Not currently offered)

232. Literature of the Middle Ages and 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: 220. FALL. [3] Monga.

233. The Literature of Barocco, Illuminismo, and Romanticismo. A survey of the literature of the seventeenth through nineteenth centuries, with particular reference to the influence of European literatures in Italy. Prerequisite: 220. [3] (Not currently offered)

235. The Literature of the Novecento. An examination of poetry and prose in their social and historical contexts. Prerequisite: 220. [3] (Not currently offered)

239. Topics in Contemporary Italian Civilization. Short stories, historical documents, and articles from the press. Prerequisite: 201. [3] (Not currently offered)

240. Modern Italian Cinema. A study of the most significant works from the Neorealismo to contemporary Italian film makers. Prerequisite: 201. SPRING. [3] Monga.

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. FALL, SPRING. [Variable credit 1–3 each semester, not to exceed 12 over a four-semester period]

294. Special Topics in Italian Literature. Prerequisite: Italian 220. [3]

Courses in English Translation

295a–295b. Special Topics in Italian Language, Literature, or Civilization in Translation. [3–3]

Germanic and Slavic Languages

CHAIR Dieter H. Sevin

DIRECTOR OF UNDERGRADUATE STUDIES IN GERMAN Sara Eigen

DIRECTOR OF UNDERGRADUATE STUDIES IN RUSSIAN Konstantin V. Kustanovich

DIRECTOR OF GERMAN STUDIES John A. McCarthy

DIRECTOR OF GRADUATE STUDIES John A. McCarthy

PROFESSORS EMERITI Antonina Filonov Gove, Helmut F. Pfanner, Richard N. Porter,

Walburga Von Raffler-Engel

DAAD PROFESSOR Matthias Schulz

PROFESSORS Barbara Hahn, John A. McCarthy, Dieter H. Sevin

ASSOCIATE PROFESSORS Konstantin V. Kustanovich, David A. Lowe, Meike G. J. Werner

ASSISTANT PROFESSORS Sara Eigen, Angela Lin, Christoph Zeller

SENIOR LECTURER Margaret Setje-Eilers

1 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 Art and Art History, 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 on the German floor in 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) and the German Club offer 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 <http://sitemason.vanderbilt.edu/German>.

The Russian program has a special commitment to undergraduate training in all aspects of Russian culture and language. Students have a wide variety of courses to choose from: 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*, *The Last Days of the Romanov Empire*, and *Short Russian Novels* (some of these courses are subject to faculty approval). The department offers majors in Russian, Russian Area Studies, and 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 Maymester 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. The following are required:

German 213–214 Intermediate German Conversation and Composition

German 221–222 German Culture and Literature

9 hours in German beyond 222

(German 223 is highly recommended)

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 201	3
3 hours in German 213, 214, or 216	3
6 hours in German 221, 222, or 223	6
6 hours of German beyond 223	6
6 hours in "German text" courses (defined below)	6
6 hours in "German content" courses (defined below)	6
Total hours:	30

A "German text" course is one in a discipline other than German literature (such as German history, women's 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.

Vanderbilt in Germany Program

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. The program is administered in cooperation with Wesleyan University in Middletown, Connecticut, and a faculty member from either Vanderbilt or Wesleyan 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.

Summer Program in Berlin

The main purpose of the summer program in Berlin is to introduce German language and culture to beginning students in an authentic, stimulating environment. The goal is both to provide students a firm foundation in language (grammar, vocabulary, and conversation) and also to introduce contemporary culture. Students will benefit greatly from direct

daily linguistic and cultural contact in Berlin, the historical and cultural nexus of Germany. The course range for language instruction consists of beginner level with very little or no previous German to intermediate and major-level courses. Students earn six or seven hours of Vanderbilt credit. Excursions help students integrate language learning with the unique educational experience of being in the target language country.

Honors Program

Candidates for honors in German who meet College 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; 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.

Program of Concentration in Russian and European Studies

Students in Russian may elect this interdisciplinary major consisting of 39 hours of course work, as follows:

1. At least 18 hours in Russian language, literature and culture, including: 12 hours of Russian language beyond first year (normally Russian 203–204, 223–224) and 6 hours selected from Russian 171–172 (Russian culture) and Russian 221–222 Survey of Russian Literature (in translation).

2. At least 12 hours in European Studies, History, and Political Science, including:

European Studies 250 and 201 plus 6 hours selected from Political Science 205, 212, History 225, 226, and 238. For this requirement students can also select from the following courses if they are offered: History 222 and 237.

3. At least 9 hours of approved electives selected from the following courses: Russian 257, 258, 289, Political Science 213, History 188, 239.

4. And 3 hours in an approved social science elective within the European Studies concentration. For this requirement students can also select from the following courses if they are offered: European Studies 225 and Political Science 231.

Courses taken in Russia or elsewhere will be evaluated on a case-by-case basis.

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, at least one survey of culture (171 or 172), or at least one survey of literature (221 or 222). 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.

Program of Concentration in Russian Area Studies

Requirements for a major are 30 hours of course work above Russian 102. Required courses are Russian 203–204, 223–224, and three approved Russian content courses offered by the departments of History, Political Science, or European Studies. 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.

*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:

One course selected from German 213 and 214	3
German 221 and 222	6
Two courses selected from German 220 and above	6
One elective course	3
Total hours:	<u>18</u>

Program II: German Studies

The minor in German Studies consists of a minimum of 18 hours of course work as follows:

German 201	3
3 hours from German 213, 214, or 216	3
3 hours from German 221, 222, or 223	3
3 hours of German literature above German 223	3
3 hours of a “German text” course	3
3 hours of a “German content” course	3
Total hours:	<u>18</u>

Minor in Russian

A minor in Russian consists of 18 hours of course work above 102. 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 divided into two categories: 9 hours of Russian courses beyond Russian 102; 9 hours of approved Russian content courses offered by the departments of History, Political Science, or European Studies. 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.

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.

101. Elementary German I. Development of the four language skills of reading, listening, speaking, and writing. FALL, SPRING. [5] Staff.

102. Elementary German II. Continuation of 101. Prerequisite: 101. FALL, SPRING. [5] Staff.

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. Prerequisite: 102. FALL, SPRING. [3] Staff.

Starred course 104 or the combination of 105 and 106 is prerequisite for all higher numbered German courses, with the exception of conversation courses and courses taught in English.

★**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. Prerequisite: 103. FALL, SPRING. [3] Staff.

105. Intensive German in Regensburg. Grammatical and syntactic structures. Prerequisite: 103; corequisite: 106. SPRING. [3] Staff.

106. Intensive German in Regensburg. Landeskunde and communicative skills. Prerequisite: 103; corequisite: 105. SPRING. [3] Staff.

201. 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. FALL. [3] Zeller.

213–214. German Conversation and Composition. Graduate credit for M.A.T. candidates only. Prerequisite: 103. FALL, SPRING. [3–3] Zeller, Sevin.

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] Sevin.

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] Setje-Eilers.

221–222. 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. FALL, SPRING. [3–3] Setje-Eilers, Zeller.

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] Eigen. (Offered 2005/2006)

235. German Romanticism. The contributions of Schlegel, Tieck, Novalis, Eichendorff, and others to literature, philosophy, and theory. Intellectual, social, and political currents. [3] Lin.

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] Werner. (Offered 2005/2006)

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. Prerequisite: completion of Basic Science requirement. [3] Haglund (Physics), McCarthy. (Offered 2005/2006)

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. No German required. FALL. [3] Eigen.

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] (Not currently offered)

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] McCarthy. (Offered 2005/2006)

262. German Literature of the Middle Ages. Examines sites of literary production (monasteries, courts, urban centers) and the evolution of literary language. [3] Werner. (Offered 2005/2006)

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] McCarthy. (Not currently offered)

265. Twentieth-Century Drama. Modern German drama and dramatic theory from Naturalism to the present. Emphasis on Brecht and post-Brechtian drama. FALL. [3] Setje-Eilers.

266. Nineteenth-Century Prose. A study of representative works of the main literary trends from Romanticism to Naturalism. [3] Lin. (Offered 2005/2006)

267. The German Novel of the Twentieth Century. A study and interpretation of the main literary trends and major figures in the novel from Expressionism to the present. SPRING. [3] Sevin.

269. Writing under Censorship. An introduction to the main literary trends and authors of the former East Germany (1949–1989). FALL. [3] Sevin.

270. German Film. A survey of the German film with special attention to its sociocultural context and to pertinent theories of photography and of cinematic narration. No knowledge of German required. SPRING. [3] Sevin.

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] Werner. (Offered 2005/2006)

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. FALL. [3] Eigen.

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. SPRING. [3] McCarthy.

289a–289b. Independent Readings. Designed for majors and qualified undergraduates. 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. [Variable credit: 1–3 each semester, not to exceed a total of 6 over a four-semester period, in both courses combined]

293a–293b–293c. Internship. 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 research will be completed in German or German Studies 293a concurrently with the completion of internship training, German or German Studies 293b. A minimum of 3 hours of 280a must be completed, independent of hours taken in 293b. Students may earn up to 6 hours of 293a 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, completion of 6 hours beyond German 103, and prior approval of the director of undergraduate studies of the student's plans are required.

293a. Internship Training. May be taken on a Pass/Fail basis only and must be taken concurrently with 280b. These hours may not be included in the minimum hours required in the German or German Studies major. FALL, SPRING, SUMMER. [Variable credit: 1–9]

293b. Internship Research. FALL, SPRING, SUMMER. [Variable credit: 1–3]

293c. Internship Readings. FALL, SPRING, SUMMER. [Variable credit: 1–3]

294a–294b. Selected Topics. May be repeated to a total of 12 hours. [3–3]

301. Stylistics. [3]

310. Foreign Language Learning and Teaching. [3]

314. Bibliography and Methods. [3]

316. Literary Theory and Criticism. [3]

330. Expressionism. [3]

335. Enlightenment and Its Literary Connection. [3]

340. Beyond Good and Evil. [3]

351. Philosophical Backgrounds of German Literature. [3]

385a–385b. Problems in Germanic Languages and Literatures. [3–3]

387. Seminar: Studies in Medieval Literature. [3]

388. Seminar: Studies in Literature 1400–1680. [3]

- 389. Seminar: 18th-Century German Literature.** [3]
- 390. Seminar: 19th-Century German Literature.** [3]
- 391. Seminar: 20th-Century German Literature.** [3]
- 392. Seminar: Problems of Theory in German Studies.** [3]

Russian

- 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. FALL. [5] Kustanovich.
- 102. First-Year Russian.** Continuation of 101 with emphasis on reading and talking about texts. Prerequisite: 101. SPRING. [5] Kustanovich.
- 171–172. Russian Culture.** The evolution of Russian civilization. The interplay between East and West in the shaping of Russian cultural achievements and national identity. No knowledge of Russian required. 171: From Kievan Russia to 1880. 172: From 1880 to the present. [3–3] (Not currently offered)
- 203–204. Second-Year Russian.** Practice of all four skills (reading, speaking, listening, and writing), grammar review, reading of contemporary Russian texts. Prerequisite: 102 or equivalent. FALL, SPRING. [3–3] Lowe.
- 221–222. Survey of Russian Literature in English Translation.** Main currents, writers, and works of Russian literature. 221: the nineteenth century: Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, and Tolstoy. 222: the twentieth century: Bulgakov, Pasternak, Solzhenitsyn, Aksenov, Trifonov, and Petrushevskaya. No knowledge of Russian required. [3–3] Lowe, Kustanovich. (Offered 2005/2006)
- 223–224. Composition and Conversation.** Development of all language skills at the intermediate-advanced level. Reading of contemporary short stories. Prerequisite: 204. FALL, SPRING. [3–3] Kustanovich, Lowe.
- 231. Jews in Russian Culture: Survival and Identity.** A course on the history of Jewish contributions to Russian culture, including literature, the visual arts, theater, and film. Questions of assimilation, the rise of Jewish national consciousness, and interest in Jewish heritage are discussed. No knowledge of Russian required. [3] (Not currently offered)
- 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] (Not currently offered)
- 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. SPRING. [3] Lowe.
- 234. The Russian Cinema.** Socialist Realism of the 1930s to 1950s; masterpieces of the post-Stalin era in the 1960s 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. FALL. [3] Kustanovich.

289a–289b. Independent Readings. Designed for majors and qualified undergraduates. 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. [Variable credit: 1–3 each semester, not to exceed a total of 6 over a four-semester period, in both courses combined]

294a–294b. Selected Topics. May be repeated to a total of 12 hours. [3–3]

Hebrew

7 STUDENTS seeking further information regarding Hebrew courses may consult the chair of the Department of Religious Studies.

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. FALL. [4] Halachmi.

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. SPRING. [4] Halachmi.

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. FALL. [3] Halachmi.

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. SPRING. [3] Halachmi.

201. Grammar and Composition. Prerequisite: 113b. [3] Halachmi. (Not currently offered)

289a–289b. Independent Study in Modern Hebrew. [Variable credit: 1–3 each semester, not to exceed a total of 6]

History

CHAIR Daniel H. Usner Jr.

DIRECTOR OF UNDERGRADUATE STUDIES Arleen M. Tuchman

DIRECTOR OF GRADUATE STUDIES Richard J. M. Blackett

PROFESSORS EMERITI Howard L. Boorman, Paul K. Conkin, Charles F. Delzell,
Jimmie L. Franklin, Dewey W. Grantham, Paul H. Hardacre, J. León Helguera,
Robert Isherwood, Douglas E. Leach, Samuel T. McSeveney, Frederick D. Schneider,
V. Jacque Voegeli, Donald L. Winters

PROFESSORS Jeremy Atack, Richard J. M. Blackett, Dennis C. Dickerson, Robert Drews,
Marshall C. Eakin, James W. Ely Jr., James A. Epstein, Robert A. Margo,
Thomas Alan Schwartz, Helmut Walser Smith, Daniel H. Usner Jr., David Wasserstein

ADJUNCT PROFESSOR Ronald A. Messier

ASSOCIATE PROFESSORS Michael D. Bess, William Caferro, David Lee Carlton,
Gerald Figal, Joel F. Harrington, Yoshikuni Igarashi, Jane Gilmer Landers,

Matthew Ramsey, Ruth Rogaski, Arleen M. Tuchman, Francis W. Wcislo

VISITING ASSOCIATE PROFESSOR Matthias Schulz

ASSISTANT PROFESSORS Katherine B. Crawford, Devin Fergus, Moses Ochonu,
Rowena Olegario, Frank Robinson, Edward Wright-Rios

SENIOR LECTURERS Yollette T. Jones, William S. Longwell, Peter Lorge

1 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, 298, and 299, courses numbered below 300 are open to all majors and non-majors. History 295 is limited to juniors and seniors, and preference is given to history majors. History 297, 298, and 299 are limited to students who have been admitted to the history honors program. Courses numbered 300 and higher may be taken by senior history majors with the approval of the instructor, the adviser, and the Graduate School.

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." It also offers a joint major in English and history, which is described in this catalog under "English and History."

Program of Concentration in History

The major program requires a minimum of 30 hours in history; no more than 6 hours of AP or IB credit may count toward this total. Course work is distributed as follows:

- 1) 200 or 297: 3 hours

Note: 200 should be taken as soon as possible and must be taken no later than the second semester of the junior year. 297 is limited to second-semester juniors who have been admitted to the honors program. Students entering the honors program who have already taken 200 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. *Comparative History/Special Topics*

See below for a list of courses that count for Concentrations A, B, C, and D.

Note: AP and IB credit will not count toward the 15 hours for the concentration; an appropriate capstone course (see below) will count. Students choosing concentration E must have the approval of their adviser and the director of undergraduate studies for a specific program of study. The director has a list of recommended thematic and comparative concentrations that reflect the teaching strengths of the History Department.

Program A. Asia

115, 115W, 152, 154, 155, 156, 157, 182, 190 (as appropriate), 246, 247, 248, 249, 250, 251, and as appropriate 294, 295, 296, 297, 298a–b, and 299

Program B. Latin America

160, 161, 172, 190 (as appropriate), 258, 259, 261, 262, 263, 264, 265, 266, and as appropriate, 294, 295, 296, 297, 298a–b, and 299

Program C. Europe

100, 101, 115 or 115W (as appropriate), 130, 180, 181, 182, 184, 185, 186, 187, 188, 190 (as appropriate), 202, 204, 205, 206, 207, 208, 209, 210, 212, 213, 214, 215, 216, 218, 220, 225, 226, 227, 228, 231, 232, 233, 234, 235, 237, 238, 239, 240, 242, 243, 245, 258, 259, 268, 269, and as appropriate 294, 295, 296, 297, 298a–b, and 299; Classical Studies 207, 208, 209, 213; Economics 271; Philosophy 210.

Program D. Early America and the United States

115 or 115W (as appropriate), 169, 170, 171, 172, 173, 176, 177, 187, 188, 190 (as appropriate), 201, 204, 205, 267, 268, 269, 271, 272, 273, 274, 275, 276,

277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, and as appropriate, 293b, 293c, 294, 295, 296, 297, 298a–b, and 299; Economics 226, 245.

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.

Option 1: 293b, Internship Research (3 hours). Must be taken in conjunction with HIST 293a (internship training). Prerequisite: HIST 200. *Note:* a student may take HIST 293b as an elective before completing HIST 200, but in this case 293b will not count as a capstone course.

Option 2: 295, Undergraduate Seminar (3 hours). Prerequisite: 200. *Note:* a student may take HIST 295 as an elective before completing HIST 200, but it will not count as a capstone course.

Option 3: An enriched version of a regular 200-level course numbered between 201 and 294 (4 hours). The student will write a major paper in addition to the regular assignments. Students interested in this option must obtain the approval of the instructor and the director of undergraduate studies before registering on OASIS. At the end of the semester, the instructor will submit a copy of the paper, with comments and grade, to the director of undergraduate studies. If it meets the standards for the option, the director will authorize the registrar to award an additional hour of credit. This option is available only to juniors and seniors majoring in history who have completed History 200. A student who has received credit for this capstone course may not subsequently enroll in a second enriched 200-level course.

Option 4: 298a–b, Senior Honors Seminar (6 hours). Limited to seniors in the history honors program; prerequisite: HIST 297.

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. These provide participants a structured 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 High Honors in History.

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, successful completion of the honors program also requires one written examination on the historical literature that relates to the student's honors thesis and an oral defense of the honors thesis before a faculty committee. Both written and oral examinations will occur 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 is an interdisciplinary program split between English and history that provides a more focused program of study while requiring fewer credit hours (36 hours) than a double major in the two fields (60-66 hours). The program also 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. The following options are offered:

I. European History

1. 100 or 101 and
2. Five of these courses: 130, 180, 181, 182, 184, 185, 186, 187, 188, 190 (as appropriate), 200, 202, 204, 211, 212, 213, 214, 215, 216, 218, 220, 222, 225, 226, 227, 228, 231, 232, 233, 234, 235, 237, 238, 239, 240, 242, 243, 245, 258, 259, 268, 269, and as appropriate, 294 or 295; Classical Studies 208, 209, 212; Economics 271.

II. American History

1. 170 or 171 and
2. Five of these courses: 169, 172, 173, 176, 177, 187, 188, 190 (as appropriate), 200, 201, 204, 205, 267, 268, 269, 271, 272, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, and as appropriate, 294 or 295; Economics 226, 290.

III. Latin American History

1. 160 or 161 and
2. Any five of these courses: 172, 200, 258, 259, 261, 262, 263, 264, 265, 266, and as appropriate, 294 or 295.

IV. East Asian History

- Six of these courses: 152, 154, 155, 156, 157, 182, 207, 246, 247, 248, 249, 250, 251, 255, and as appropriate, 294 or 295.

100. History of Western Civilization to 1700. Judeo-Christian and Greco-Roman foundations to the beginning of the eighteenth century. No credit for students who have completed 115W, section 48. FALL. [3] Crawford.

101. History of Western Civilization since 1700. European history from the age of the Enlightenment to the present day. No credit for students who have completed 115W, section 49. SPRING. [3] Wcislo.

102. Themes in Western Civilization to 1700. Introduction to history of Western civilization organized around a core theme; themes vary. No credit for students who have completed 100 or 115W, section 48. [3] Staff. (Not currently offered)

103. Themes in Western Civilization since 1700. Introduction to history of Western Civilization organized around a core theme; themes vary. No credit for students who have completed 101 or 115W, section 49. [3] Staff. (Not currently offered)

115, 115W. Freshman Seminar. [3]

130. Western Military History to 1815. War in culture, politics, society, technology, the Military Revolution and state-formation. SPRING. [3] Lorge.

131. 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. In addition, the course will examine 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 both Naval Science 131 and History 131. SPRING. [3] Auer.

140. Global History since 1500. Interconnections among different parts of the world. Capitalism and trade; science and technology; warfare and the rise and fall of great powers; imperialism/colonialism; cultural exchanges; ecology and human populations; religion; modern ideologies. [3] Staff. (Not currently offered)

152. Modern East Asia. East Asia's encounter with modernity from 1800 to the present. Traditional orders in China, Japan, Korea, and Vietnam; European imperialism; the rise and persistence of Communism in East Asia. East Asia as new center of global development in the twenty-first century. SPRING. [3] Rogaski.

154. History of Asian Civilization: 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. FALL. [3] Lorge.

155. History of Asian Civilization: Modern China. Modern China from the seventeenth century to the present. Alien rule and dynastic decay; major artistic, literary, and intellectual traditions and innovations; peasant uprisings; Western imperialism; political, cultural and social revolutions of the twentieth century; Communist rule; post-Mao economic and social reforms. FALL. [3] Rogaski.

156. Chinese Thought. Confucianism and Philosophical Daoism. The Confucian Four Books, the Daodejing (Laozi), Zhuangzi, and Neo-Confucianism. Prerequisite: 154. FALL. [3] Lorge.

157. History of Asian Civilization: Japan. Development of Japanese civilization from ancient times to the twentieth century, emphasizing cultural traits within Japan and its relations with neighboring regions in East Asia. [3] Igarashi. (Not currently offered)

160. Colonial Latin America. A 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. No credit for students who have completed 160a. FALL. [3] Eakin.

161. 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. No credit for students who have completed 160b. SPRING. [3] Eakin.

169. 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. FALL. [3] Usner.

170. History of the United States to 1865. The main social, political, economic, and cultural developments of the United States from colonization through the Civil War. No credit for students who have completed 171a or 115W, section 51. FALL. [3] Carlton.

171. History of the United States since 1865. The main social, political, economic and cultural developments of the United States from 1865 to the present. No credit for students who have completed 171b or 115W, section 50. SPRING. [3] Schwartz.

172. Slavery in the Americas, 1492–1822. Comparative study of slavery in the American colonies to the collapse of the great European empires. Spanish/Portuguese and English slave systems compared; development of slave trade; varieties of unfree labor; slave resistance; Afro-Creole cultures. [3] Landers. (Not currently offered)

173. The First New Nation. American history from the winning of independence to the 1820s. The Constitution, the formation of national government, political conflict, republicanism and the rights of minorities, national culture, foreign relations in an age of revolution. Primarily for freshmen and sophomores. No credit for students who have completed 272a. [3] Staff. (Not currently offered)

176. The United States in the 1960s. Domestic history of the U.S. during 1960–1973 emphasizing changes driven by new social forces; “baby boom” demographics, economic growth, consumer culture, and insurgent social movements (civil rights, feminism, student rights, antiwar protest, counterculture, environmentalism). [3] Staff. (Not currently offered)

177. 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] (Not currently offered)

180. History of Christian Traditions. Christian traditions from the origins to the present. Such themes as christology, church and state, and the social and cultural contents of changing Christian beliefs, and views of the Church. SPRING. [3] Harrington.

181. 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] Caferro.

182. Communism in China and Russia. Comparative historical experiences of twentieth-century Chinese and Russian communism. Revolutions of 1917 and 1949; governing ideological visions; revolutionary social change; dominant cultural discourse; popular understandings of liberation and oppression. [3] Wcislo. (Not currently offered)

184. Nazi Germany and the Holocaust. Historical approach to the Holocaust: its origins, the way it happened, its legacy. Special attention paid to understanding the Holocaust in the context of Germany and European history. FALL. [3] Smith.

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. SPRING. [3] Crawford.

188. History of 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. SPRING. [3] Bess.

190. Contemporary Issues in Historical Perspective. Selected topics examined in various historical contexts. Subjects vary and may include motherhood, marriage, racism, and environmentalism. [3] (Not currently offered)

200. The History Workshop. Introduction to the “historian’s craft.” Reconstructing the past using primary documents, diaries, letters, memoirs, and recently declassified government papers. Methods of historical research and reasoning through individual projects. FALL, SPRING. [3] Staff.

201. Twentieth Century African American Religious History. Pentecostalism, gospel blues, effect of urbanization and industrialization on black churches, religion in the civil rights movement, black power and black theology, women in religious institutions, and post-denominationalism. [3] Dickerson. (Not currently offered)

202. Science and Society after the Enlightenment. The intellectual, philosophical, and social factors influencing the development of scientific theories since the Enlightenment. [3] Tuchman. (Not currently offered)

203. Interdisciplinary Historical Studies. Team taught by a historian and a member of another discipline, such as philosophy, law, medicine, religious studies, sociology, or political science. Explores intersections of disciplines through the analysis of historical development in light of the perspective brought by the other discipline. Topics vary; course may be taken more than once. FALL, SPRING. [3] Staff.

204. History of Medicine, 1750 to the Present. The scientific, technological, cultural, and professional factors influencing the rise of medicine. Emphasis on the period since about 1750 in both Europe and America. [3] Tuchman.

205. Historical Perspectives on Women, Health, and Sexuality. Women as patients and healers. Emphasis on America. 1750 to the present. Topics include women’s diseases and treatments, changing definitions of “woman,” sexuality, childbirth, birth control, abortion, midwives, nurses, and doctors. [3] Tuchman. (Not currently offered)

206. Medicine, Culture, and the Body. (Also listed as Anthropology 260) 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. [3] Conklin, Tuchman. (Not currently offered)

212. Medieval Europe, 300–1000. Rome, Latin Christendom, and the East; political events and the adaptation of Roman and Christian traditions to the needs of society emerging from the invasions. [3] Caferro.

213. 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] Caferro.

214. Europe in the Age of the Renaissance. The political, social, economic, and religious history of Europe from 1300 to 1500, with particular emphasis on the intellectual aspects of the early Italian Renaissance. [3] Harrington. (Not currently offered)

215. Europe in the Age of the Reformation, 1500–1648. 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] Harrington. (Not currently offered)

216. Europe in the Age of Absolutism, 1648–1789. The rise of the absolute state and popular revolt in the seventeenth century with emphasis on France and Spain. Dutch history, mercantilism, and international conflicts. The Enlightenment viewed especially from the standpoint of Enlightened Despotism. [3] Crawford. (Not currently offered)

218. Europe in the Age of Revolution, 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. FALL. [3] Ramsey.

220. Europe in the Nineteenth Century. Major political, social, economic, and cultural developments from 1815 to 1914. [3] Ramsey. (Not currently offered)

221. Sexuality and Gender in the Western Tradition to 1700. Politics, war, and masculinity; Christianity and sexuality; changing ideas about gender roles and sexual practices. No credit for students who have completed 185. [3] Crawford. (Not currently offered)

222. 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. No credit for students who have completed 186. [3] Crawford. (Not currently offered)

225. Europe From World War I to World War II. Political, socioeconomic, cultural, and colonial history of Europe from 1914 to the fall of Hitler. FALL. [3] Schulz.

226. 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. SPRING. [3] Schulz.

227. Intellectual History of Early Modern Europe. The significant intellectual developments of early modern Europe in relation to their social, political, and economic background. Selected individual contributions to philosophy, political theory, literature, and science. [3] Crawford. (Not currently offered)

228. Intellectual History of Modern Europe. Major intellectual and cultural developments since the French Revolution. Emphasis on political and social thought, with some attention to science, philosophy, literature, and the arts. [3] Ramsey. (Not currently offered)

230. European Unification since 1945. Origins, developments, and issues in the history of European unification. Special emphasis placed on the European movement, U.S. influence, national identity and interests, federalism, and the road to monetary union and enlargement. [3] Schulz. (Not currently offered)

231. History of Germany in the Twentieth Century. 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. No credit for students who have completed 230b. SPRING. [3] Smith.

232. History of Modern Italy. Survey of Italian political, socioeconomic, cultural, and colonial history from 1800 to the present. The Risorgimento, national unification, Liberal Monarchy, Fascism, and the Republic. [3] Bess. (Not currently offered)

233. 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] Caferro. (Not currently offered)

234. History of France from the Renaissance to the Enlightenment. Social and cultural history from 1515 to 1774. The conditions of life, ambitions, ideas, and tastes of the various social groups in France. The development of the arts, music, and literature in a social and political context. [3] Crawford. (Not currently offered)

235. Modern France. From the French Revolution of 1789 to the present. Emphasis on politics, with some attention to the major economic, social, cultural, and intellectual developments. SPRING. [3] Ramsey.

237. Russia: Tsardom to Empire. Russian history from fifteenth-century Muscovite state, society, and economy; orthodox Russian culture and religion; Peter the Great and Catherine the Great; eighteenth century absolutism, empire, serfdom, and intellectual life. FALL. [3] Wcislo.

238. 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] Wcislo. (Not currently offered)

239. 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] Wcislo. (Not currently offered)

240. Medieval and Early Modern England. Cultural, political, legal and religious developments in England from its Romano-Celtic antecedents through the seventeenth century. [3] (Not currently offered)

242. England under the Tudors. Political, religious, and cultural history of England from Henry VII's accession to the death of Elizabeth I. Emphasis on the Protestant Reformation and its effects; the interaction between monarchy and parliaments; Puritans and other dissenters; Elizabethan literature, drama, art and music; popular culture; and the witch craze. [3] (Not currently offered)

243. Britain's Century of Revolution. Politics, religion, and culture of the British Isles in the seventeenth century. Analysis of the Civil War, Republic and Cromwellian Protectorate, Restoration, Glorious Revolution, and the political theory sparked by these conflicts, including works of Milton and Marvell, Hobbes and Locke; arts and literature; scientific revolution and intellectual change; witch craze; beginnings of empire. [3] (Not currently offered)

244. 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. Topics vary; course may be taken more than once. Preference to students majoring in the English-History program. FALL, SPRING. [3] Staff.

245. Victorian England. Cultural values, liberal reform; urbanization; women and gender; imperialism. [3] Epstein.

246. Sexuality and Gender in China. Construction of masculine and feminine identities in traditional China; martial arts, footbinding, erotica, and chastity. Twentieth-century revolutions in gender roles and marriage; questions of gay culture, women's liberation, and "free love" in contemporary China and Taiwan. SPRING. [3] Rogaski.

247. Themes in Modern Chinese History. Intensive reading, discussion, and short papers on selected themes in Chinese social and cultural history. Particular topics vary from semester to semester. May be taken more than once if there is no overlap with a prior offering. FALL. [3] Rogaski.

248. History of Chinese Medicine. The historical divergences between medicine in China and the West. Readings in Chinese medical classics, including the *Inner Cannon of the Yellow Emperor* and early herbal manuals. Chinese medicine's encounter with Western medicine in the twentieth century: the creation of "Traditional Chinese Medicine" in the PRC and the emergence of Chinese medicine as "alternative medicine" in the U.S. FALL. [3] Rogaski.

249. History of Modern Japan. The political, social, economic, and cultural history of Japan in the nineteenth and twentieth centuries. Radical changes in the state, society, and economy and the effects of these changes on Japan's place in the world. FALL. [3] Igarashi.

250. Cultural and Social History of Japan's Recent Past. Japanese culture and society from the 1930s to the present. Impact of war experiences on postwar Japan, and the political nature of cultural production. [3] Igarashi. (Not currently offered)

251. Popular Culture 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). Content includes woodblock prints, pleasure quarters, kabuki theatre, street gangs, commoner carnivals, and popular literature. FALL. [3] Figa.

252. International Business History. 1700 to the present. Business systems and cultures of Britain, Germany, the U.S., Japan, and China. Firms, entrepreneurs, technology, institutional arrangements, finance, and government regulations and policies. Prerequisite: Economics 100 or 101. [3] Olegario. (Not currently offered)

253. 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] (Not currently offered)

254. Africa since 1800: The Revolutionary Years. Political, economic, and social patterns in Sub-Saharan 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] Longwell. (Not currently offered)

255. The Islamic World to 1798. History of the Islamic world, sixth century A.D. to 1798. The rise and spread of Islam as a world empire, a religious system, a cultural-economic network, and a way of life. Historical and literary sources and artifacts. [3] Messier. (Not currently offered)

256. Nationalism and Islam in the Middle East since 1798. Secular nationalism and the changing nature of Islamic identification in the Middle East with emphasis on Egypt, Turkey, Iran, and Palestine/Israel. SPRING. [3] Longwell.

258. Rise of the Iberian Atlantic Empires, 1492–1700. Pre-Columbian societies; the formation of the early Spanish state and imperial expansion in the Americas; the formation of multiethnic transatlantic societies. FALL. [3] Robinson.

259. Decline of the Iberian Atlantic Empires, 1700–1820. Reorganization of the Spanish and Portuguese empires, maturation of transatlantic societies; revolutions for independence. SPRING. [3] Robinson.

260. Caribbean History, 1492–1983. Amerindian society; age of encounter; imperial contest; slavery and abolition; U.S. influence; independence movements; cultural movements; invasion of Grenada. FALL. [3] Blackett.

261. Colonial Mexico. The cultural history of major pre-Columbian groups; the conquest and settlement by the Spaniards; colonial society through independence in 1821. No credit for students who have completed 261a. [3] Landers. (Not currently offered)

262. 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] Robinson.

263. Southern South America since 1800. The political, social, and economic history of Argentina, Chile, and Uruguay from the end of colonial times to the present. The formation and consolidation of nation-states; the export booms of 1800–1930; industrial advance and mass politics; military dictatorships and the return to open markets. [3] (Not currently offered)

264. Brazilian Civilization. From pre-Columbian times to the present. Clash and fusion of Portuguese, Amerindian, and African cultures; sugar and slavery; independence and empire; the coffee economy; race relations; the search for national identity; industrialization; dictatorship and democracy in the twentieth century. [3] Eakin. (Not currently offered)

266. 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. SPRING. [3] Robinson.

267. North American Colonial History. European colonization before 1763. Conflict, trade, and settlement in various regions. Evolution of colonial societies, Atlantic connections, and imperial rivalries. SPRING. [3] Usner.

268. 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] Staff. (Not currently offered)

269. Cultural History of the First British Empire, 1707–1783. The creation of Great Britain; expansion of British overseas interests in America, Africa, Asia, and the Pacific; development of creole cultures; British imperial policy and transatlantic cultures; the American Revolution and growth of antislavery. [3] Staff. (Not currently offered)

271. The Era of Reform. Reform movements in the United States from 1800 to the 1870s. Antislavery, temperance, feminism, communities, peace, labor, schools, asylums, and pen-

ientiaries. Religious and secular backgrounds, Anglo American links, legacies, and consequences. [3] (Not currently offered)

272. The U.S. in the Era of the Civil War. Sectional conflict, secession, the Southern War for Independence, and Reconstruction; 1850–1877. FALL. [3] Olegario.

274. The United States, 1916–1945. American involvement in World War I, war and peace in the 1920s; the Great Depression, the New Deal, and World War II. [3] (Not currently offered)

275. Recent America: The United States since 1945. A general study of the postwar period, with particular attention to the dynamics of social and political change. [3]

276. 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. FALL. [3] Carlton.

277. 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. SPRING. [3] Carlton.

278. History of 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] Carlton. (Not currently offered)

279. African American History to Reconstruction. The political, socioeconomic, and intellectual history of African American people from their African backgrounds to the end of the Reconstruction. Emphasis on the institutional history of the African American community. [3] Dickerson. (Not currently offered)

280. African American History since Reconstruction. 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. SPRING. [3] Fergus.

281. 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] Schwartz. (Not currently offered)

282. 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. No credit for students who have completed 280a. [3] Schwartz. (Not currently offered)

283. 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. No credit for students who have completed 280b. [3] Schwartz. (Not currently offered)

284. American Social History to 1865. The social causes and consequences of such events as the American Revolution and the Civil War. The impact of industrialization and urbanization on the elite, labor, immigrants, blacks, women, and the family. [3] (Not currently offered)

285. American Social History since 1865. The social causes and consequences of such events as Progressive Reform and the Great Depression. The impact of industrialization and urbanization on the elite, labor, immigrants, blacks, women, and the family. [3] Doyle. (Not currently offered)

286. Gender, Sexuality, and Race in Early American Culture, 1600–1865. Social and cultural history of gender, race, and sexuality as represented in literary, legal and artistic texts. Exploration of Native American conquest, captivity narratives, abolitionism and sentimental fiction, nationalism and gender ideas. FALL. [3] Staff.

287. Gender, Sexuality, and Race in American Culture, 1865 to the Present. Social and cultural history of the intertwined ideas and practices of gender, race, and sexuality. Exploration of experiences, representations, and activism in feminist and gay rights movements, interracial unions, marriage and the family, black women's activism, suffrage, and sexual revolutions. SPRING. [3] Staff.

288. History of American Thought from the Puritans to the Civil War. Basic beliefs and preferences, with special emphasis upon Christian doctrine and political and economic theory. Understanding of the origins of a largely Christian, republican, and capitalist America. [3] (Not currently offered)

289. History of American Thought since 1865. Basic beliefs and preferences, with special emphasis upon Darwinian theory, the physical sciences, classic American philosophers, and the various and confusing intellectual fashions of the twentieth century. [3] (Not currently offered)

291. History of 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. FALL. [3] Carlton.

293a–293b–293c. Internship. 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.

293a. Internship Training. Must be taken Pass/Fail and concurrently with 293a and/or 293b. These hours may not be included in the minimum hours required for the history major. FALL, SPRING. [Variable credit: 3–9]

293b. Internship Research. Students will write a substantial research paper under the supervision of a member of the Vanderbilt Department of History. FALL, SPRING. [3]

293c. Internship Readings. 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. FALL, SPRING. [3]

294. Selected Topics in History. FALL, SPRING. [3] Figal.

295. Undergraduate Seminar in History. An undergraduate seminar involving advanced reading, research, and writing in a particular area of history. May be taken no more than two times, and not twice from the same professor. Limited to juniors and seniors with preference to history majors. FALL, SPRING. [3] Staff.

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. May be taken no more than two times, and not twice from the same professor. Approval of faculty adviser and director of undergraduate studies required. FALL, SPRING. [3]

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. SPRING. [3] Wcislo.

298a–298b. Senior Honors Research Seminar. Presentation and discussion of drafts and chapters of honors theses in progress. Open only to senior honors students. Participants must also register for History 299 in spring. Fulfills the requirement of 295 for majors. FALL, SPRING. [3–3] Tuchman.

299. Senior Honors Thesis. Readings of monographs, primary source research, and writing an honors thesis under the supervision of the thesis adviser. Open only to seniors in the departmental honors program who have completed 297. Participants in 299 must also register for 298b. SPRING. [3] Tuchman.

300a–300b. Introduction to Historical Methods and Research. [3–3]

301. The Art and Craft of Teaching History. Readings on pedagogical theory and current research on college-level teaching and learning. Hands-on exercises in course design, preparing and grading tests and assignments, lecturing, leading discussion, cooperative and service learning, and use of technology to enhance teaching. Normally limited to graduate students in History. FALL. [3] Eakin.

305. Studies in Comparative History. [3]

309. Studies in the Philosophy of History. FALL. [3]

315a. Studies in Early Modern European History. [3]

320a. Studies in European History, 1815–1914. [3]

321. Topics in European History. [3]

324a. Studies in Recent European History. [3]

340. Urban History. [3]

343a. Studies in Early Modern Britain. [3]

343b. Seminar in Early Modern Britain. [3]

344a. Studies in Modern England. [3]

344b. Seminar in Modern England. [3]

360. Studies in Imperialism. [3]

361. Topics in Latin American History. [3]

365. Seminar in Latin American History. [3]

371a. Studies in Early American History to 1783. [3]

372a. Studies in the Middle Period of American History, 1783–1861. [3]

373a. Studies in United States History, 1861–1900. [3]

374a–374b. Studies in Recent American History. [3–3]

375. Seminar in Recent American History. [3]

- 378a. Studies in History of the South.** [3]
380a. Studies in American Diplomatic History. [3]
381. Topics in American History. [3]
384a. Studies in American Social History. [3]
384b. Seminar in American Social History. [3]
385a–385b. Studies in the Intellectual History of the United States. [3–3]

Honors

1 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 Committee on the Honors Program for admission to the College Scholars program; only freshmen are considered for admission. An Honors seminar will satisfy the requirement for a freshman seminar.

Honors seminars for College Scholars provide an especially interesting and challenging way for well-qualified students to complete certain parts of the College Program in Liberal Education. 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 each the first time they take Honors 181, 182, 183, 184, or 185; one if they take a second seminar in the same area. Honors 184, an interdisciplinary seminar, does not count toward the College Program (CPLE). Single honors points may be earned (a) in honors sections of regular courses, (b) in independent study approved by the Committee on the Honors Program, 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 intensive analysis. Honors 181, 182, 183, 185, and 185a–185b count toward the CPLE requirements identified by the seminars’ titles. Honors 181 treats the traditions of human thought and art, the relationships among the various subjects in the humanities, and the importance of humanistic concerns to the daily lives of all thoughtful persons. Honors 182 examines how science advances, what science can and cannot do, the effects of science and tech-

nology on human beings, the importance of science in our culture, and the historical effects of scientific theories. Honors 183 treats the relationships among human beings and the diverse structures and institutions of their social environment—the family; religious, social, economic, and other institutional forms; modern states; and the framework of an international order. Honors 185 and 185a–185b considers some of the fundamental principles that order natural phenomena; the scope, accuracy, and quantitative precision of scientific theories; and the parts played by observation and experiment, deduction, imagination, accident, and influences from the larger society in the development of scientific theories.

Honors 184 seeks to integrate modes of study, understanding, and comprehension employed by the humanities, natural science, and the social sciences. Some of the offerings under Honors 184 may be team-taught.

Honors 181, 181W. College Honors Seminar in the Humanities. FALL, SPRING. [3] Staff.

Honors 182. College Honors Seminar on Science and the World. FALL, SPRING. [3] Staff.

Honors 183. College Honors Seminar in Social Science. FALL, SPRING. [3] Staff.

Honors 184. College Integrative Honors Seminar. May not be taken more than once. FALL, SPRING. [3] Staff.

Honors 185. College Honors Seminar in Basic Science. FALL, SPRING. [3] Staff.

Honors 185a–185b. College Honors Seminar in Basic Science. Three lectures and one laboratory/discussion. 185a is prerequisite to 185b. 185a, SPRING. [4–4] Staff.

Interdisciplinary Studies

Any student who is classified as at least a sophomore and in good standing can earn one credit hour per semester or summer for an internship completed under the designation INDS 280. This course may be taken once or repeated twice for a maximum of three credit hours. As is the case with all internships taken in the College of Arts and Science, students are responsible for obtaining their own internship and faculty adviser. The student and faculty adviser will work together to develop the plan of work for the internship, which must be approved by the director of internships in the College (Associate Dean Yollette T. Jones) and the chair of the College Curriculum Committee.

201. Liberty. Interdisciplinary study of individual, economic, political, and religious liberties, their interrelationships and their role in modern society. Limitations of liberty, nature of a “free society.” [3] Lachs (Philosophy). (Not currently offered)

280a–280b–280c. Interdisciplinary Internship. Internship credit for work overseen by the College Curriculum Committee and administered by the chair thereof for independent projects approved in advance by the relevant department(s). A written scholarly project must

be produced in the internship. Course must be taken P/F. [1 credit only per semester; course may be repeated to a total of three credits]

Japanese

SENIOR LECTURER Keiko Nakajima

LECTURER Mine Yoshizawa

1 COURSES in Japanese may be taken on an elective basis. Students interested in an interdisciplinary major in East Asian studies may consult the director of the program about the role of Japanese in such a major.

201–202. Beginning Modern Japanese. Introduction to modern Japanese language including the acquisition of oral-aural skills, basic grammar, and introduction to reading and writing Japanese syllabaries and Chinese characters. [5–5] Nakajima, Yoshizawa.

211–212. Intermediate Modern Japanese. Emphasis on reading. Also included are syntax, writing, translation, and conversation. Prerequisite: 201–202. [5–5] Nakajima.

241–242. Third-Year Japanese. Readings in contemporary Japanese texts. Advanced conversation and discussion. Prerequisite: 211–212 or equivalent. [3–3] Nakajima.

251–252. Fourth-Year Japanese. Readings in advanced Japanese cultural, literary, and historical texts. Prerequisite: 241–242. [3–3] Yoshizawa.

289a–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. FALL, SPRING. [Variable credit: 1–3, not to exceed a total of 12 over a four-semester period]

Minor in Japanese Language and Culture

The minor in Japanese Language and Culture requires 19 hours of course work, including Japanese 211, 212, and 241 (Japanese 201 and 202 are not counted toward the minor); and two electives from the following list, with one course from each of A and B.

Group A: East Asian Studies 240 (Current Japan-U.S. Relations), 294a, 294b (Special Topics: by permission of the director of East Asian Studies); History 249 (History of Modern Japan), 250 (Cultural and Social History of Japan's Recent Past); Political Science 214 (The Japanese Political System).

Group B: Art and Art History 253 (Japanese Art), 254 (Japanese Painting and Prints).

The courses that are offered in the CIEE program and the Rikkyo program in Japan may be counted toward the minor.

Jewish Studies

DIRECTOR Jack M. Sasson

ASSISTANT PROFESSOR Martina Urban

1 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. 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 art. Students may focus on several areas of concentration and tailor the major to their academic and career interests. They will also have access to courses offered by the schools of business, divinity, education, law, medicine, and music; they will 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 a fine academic foundation for a variety of rewarding career paths.

Visit www.vanderbilt.edu/jewishstudies for more details.

Major in Jewish Studies

The major in Jewish Studies requires a minimum of 36 hours. Elementary knowledge of Hebrew (Hebrew 111a–b) is prerequisite to the major.

Core Requirements (up to 24 hours)

1. *Foundational course*, 3 hours. JS 245, Major Themes in Jewish Studies.
2. *Hebrew*, 6 hours. Intermediate Hebrew (Hebrew 113a–b). Proficiency can be demonstrated through testing.
3. *Focus courses*, 12 hours. Select from the following sub-fields of study:
 - Biblical Studies
 - Antiquity and Medieval Thought
 - Modern and Contemporary Experience
 - Culture, Philosophy, and Literature
4. *Senior seminar*, 3 hours. JS 295, Senior Seminar.

Electives (up to 18 hours)

In addition to courses drawn from departments and the professional schools, non-traditional course work may also be selected, including

archaeology at Tel Megiddo (Israel), service learning, and internships. Study abroad is encouraged.

Honors Program in Jewish Studies

The honors program in Jewish Studies affords superior students a more intensive concentration within their major field. The program requires:

1. a 3.0 cumulative grade point average.
2. a 3.25 grade point average in Jewish Studies.
3. completion of the junior year.
4. 6 hours in Honors sections (JS 298a–298b), including completion of thesis. These hours may count toward the major.
5. an honors thesis to be completed by mid-spring of the senior year.
6. 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. Elementary Hebrew (Hebrew 111a–b) is prerequisite. The minor requires a minimum of 18 hours.

Core Requirements (12 hours)

1. *Foundational course*, 3 hours. JS 245, Major Themes in Jewish Studies.
2. *Focus courses*, 9 hours. (See major for categories.)
3. *Electives*, 6 hours.

Special Topics courses or Freshman Seminar courses dealing with topics related to Jewish Studies may be counted with the approval of the major or minor adviser.

LANGUAGE: Hebrew: 111a–111b, Elementary Hebrew (prerequisite); 113a–113b, Intermediate Hebrew; 201.

JEWISH STUDIES: 194, Selected Themes in Jewish Studies; 244, Freud and Jewish Identity; 245, Major Themes in Jewish Studies; 250, The Problem of Evil in Judaism; 251, Mysticism and Myth in Modern Jewish Thought; 280, Contemporary Jewish Issues; 288a–288b, Internship (288a, Internship Training; 288b, Internship Research); 289, Independent Study; 290, Directed Readings; 294, Special Topics; 295, Senior Seminar; 298a–298b, Senior Honors Research Seminar.

BIBLICAL STUDIES: English: 282, The Bible in Literature. Religious Studies: 106, The Hebrew Bible and Its Interpretations; 108, Themes in the Hebrew Bible; 201, The Problem of Biblical Authority; 207, Jesus the Jew; 208, The Hebrew Bible; 221, Law in the Hebrew Bible; 225, Major Prophets of the Hebrew Bible; 259, The Book of Joshua.

ANTIQUITY AND MEDIEVAL THOUGHT: Anthropology: 101, Introduction to Anthropology; 211, Archaeology; 217, Old World Archeology. History: 207, History of the Ancient Near East. Philosophy: 211, Medieval Philosophy. Religious Studies: 112, Introduction to Judaism; 113, Introduction to Islam; 224, The Ancient Origins of Religious Conflict in the Middle East; 226, Jewish and Christian Self-Definition in Antiquity; 251, Mysticism in Islam; 254, The Qur'an and Its Interpretations; 260, Rabbinic Thought and Theology.

MODERN AND CONTEMPORARY EXPERIENCE: European Studies: 231, Contemporary Issues in Europe. Germanic and Slavic Languages: 241, Racial Imagination; 271, Women at the Margins: German-Jewish Women Writers; 273, Nazi Cinema: The Manipulation of Mass Culture. History: 184, Nazi Germany and the Holocaust; 225, Europe from World War I to World War II; 231, History of Germany in the Twentieth Century. Political Science: 246, Religion and Politics in the United States. Religious Studies: 220, Constructions of Jewish Identity in the Modern Period; 228, Antisemitism and Jewish Identity; 233, History and Memory in Modern Judaism; 229, The Holocaust: Its Meaning and Implications.

CULTURE, PHILOSOPHY, AND LITERATURE: Anthropology: 103, Origins of Human Culture; 104, The Rise and Fall of Civilization; 206, Theories of Cultures and Human Nature; 226, Anthropology of Religion; 237, Ethnicity, Race, and Culture. Art and Art History: 214, Jewish and Islamic Art and Architecture. Comparative Literature: 230, Contemporary Literature of Central Europe; 278, Colonial and Post-Colonial Literature. German: 222, German Culture and Literature. History: 256, Nationalism and Islam in the Middle East since 1881. Music Literature: 183, Music, the Arts, and Ideas; 261, Music, Identity, and Diversity; 278, Music and Religion. Philosophy: 218, Hellenistic and Late Ancient Philosophy; 242, Philosophy of Religion; 245, Humanity, Evolution, and God; 261, Jewish Philosophy; 262, Islamic Philosophy. Religious Studies: 102, Science and Religion in the Modern and Post-Modern World; 104, Religion, Science, and Evolution; 131, Themes in Western Religions; 140, Introduction to Western Religious Ethics; 202, Natural Science and the Religious Life; 222, Jewish Ethics; 223, Ethics and Feminism; 227, American Jews on Religion and Republic; 230, Women and Religion; 232, Feminist Interpretations of Scripture; 237, Psychology of Religious Myth and Ritual; 239, Religious Autobiography; 241, Religion, Science, and Evolution; 256, Comparative Studies in Religion. Russian: 231, Jews in Russian Culture: Survival and Identity. Sociology: 246, Sociology of Religion; 255, Racial and Ethnic Minorities in the United States.

For additional curricular options, please consult the Jewish Studies Web site, www.vanderbilt.edu/jewishstudies.

Jewish Studies 194. Selected Themes in Jewish Studies. Topics to be announced. May be repeated more than once if there is no duplication. FALL, SPRING. [3] Staff.

Jewish Studies 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. SPRING. [3] Geller.

Jewish Studies 245. Major Themes in Jewish Studies. Critical and comparative study of Jewish culture using evolving models and paradigms from Jewish beliefs, identity, and history. FALL. [3] Urban.

Jewish Studies 250. The Problem of Evil in Judaism. Reviews the explanations of the origin, nature, and representations of evil from Scripture through the Hasidic masters as well as reflections of the modern thinkers. FALL. [3] Urban.

Jewish Studies 251. Mysticism and Myth in Modern Jewish Thought. Mystical ideas, the ecstatic experience, and the crafting of myth to renew Jewish spirituality. FALL. [3] Urban.

Jewish Studies 280. Contemporary Jewish Issues. Projects will vary according to the instructor. Service to community will be integral part of course. SPRING. [3] Staff.

Jewish Studies 288a–288b. Internship. 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.

Jewish Studies 288a. Internship Training. May be taken on a Pass/Fail basis only and

must be taken concurrently with 288b. FALL. [Variable credit: 1–3]

Jewish Studies 288b. Internship Research. Students will write a research paper drawing on their experiences in 288a. FALL. [3]

Jewish Studies 289. Independent Study. A research project carried out under the supervision of a faculty mentor. [Variable credit: 1–3; may be repeated to a maximum of 3]

Jewish Studies 290. Directed Readings. Advanced readings and research on a selected topic done under the supervision of a faculty mentor. [3] Staff.

Jewish Studies 294. Special Topics. Topics as announced in the *Schedule of Courses*. May be repeated if there is no duplication of material. FALL, SPRING. [3]

Jewish Studies 295. Senior Seminar. Advanced reading and research in a particular area of Jewish Studies. SPRING. [3]

Jewish Studies 298a–298b. Senior Honors Research Seminar. Presentation and discussion of progress being made on honors theses. Open only to senior honors students. FALL, SPRING. [3–3]

Latin American and Iberian Studies

DIRECTOR Marshall C. Eakin

Affiliated Faculty

PROFESSORS Arthur A. Demarest (Anthropology), Tom D. Dillehay (Anthropology), Marshall Eakin (History), Earl E. Fitz (Spanish and Portuguese), Leonard Folgarait (Art and Art History), Edward H. Friedman (Spanish and Portuguese), Thomas A. Gregor (Anthropology), Cathy L. Jrade (Spanish and Portuguese), William Luis (Spanish and Portuguese), Andrea Maneschi (Economics), William L. Partridge (HOD and Anthropology), René Prieto (Spanish and Portuguese), Philip D. Rasico (Spanish and Portuguese), Mitchell A. Seligson (Political Science)

ASSOCIATE PROFESSORS Susan Berk-Seligson (Latin American Studies), Victoria Burrus (Spanish and Portuguese), Beth A. Conklin (Anthropology), Edward F. Fischer (Anthropology), William R. Fowler Jr. (Anthropology), Jane G. Landers (History), James J. Lang (Sociology), Benigno Trigo (Spanish and Portuguese), Andrés Zamora (Spanish and Portuguese)

ASSISTANT PROFESSORS M. Francille Bergquist (Spanish and Portuguese), Jason Borge (Spanish and Portuguese), Francisco Estrada-Belli (Anthropology), Maria José de la Fuente (Spanish and Portuguese), Annabeth Headrick (Art and Art History), John Janusek (Anthropology), Carlos Jáuregui (Spanish and Portuguese), Christina Karageorgou (Spanish and Portuguese), Emanuelle Oliveira (Spanish and Portuguese), Frank Robinson (History), Norbert O. Ross (Anthropology), Tiffany A. Tung (Anthropology)

SENIOR LECTURERS Christina Capella (Spanish and Portuguese), Sarah Delassus (Spanish and Portuguese), Ramón Jrade (Sociology), Elena Olazagasti-Segovia (Spanish and Portuguese), Raquel Rincón (Spanish and Portuguese), Francisco Saez (Spanish and Portuguese), Cynthia Wasick (Spanish and Portuguese)

For more than thirty years Vanderbilt has shown a concern for and commitment to Latin American studies, becoming one of the first American universities to anticipate the national interest in Latin America. Vanderbilt's Center for Latin American and Iberian Studies seeks to advance fundamental and applied knowledge of Latin American countries through teaching, research, publication, and scholarly exchange. Participating in the specialized teaching and research activities of the center are the departments of Anthropology, Art and Art History, Economics, History, Political Science, Sociology, and Spanish and Portuguese. The center faculty has built an invaluable asset in the form of personal and professional contacts in Latin America.

The center has offered an interdisciplinary program of concentration for undergraduate students since 1973. An honors program is available, and students may participate in Vanderbilt study abroad programs in Argentina, Brazil, Chile, the Dominican Republic, or Spain.

Program of Concentration in Latin American and Iberian Studies

The interdisciplinary major in Latin American and Iberian Studies consists of 42 hours, including:

1. *Language Requirement.* A student must demonstrate ability in both Spanish and Portuguese by demonstrating advanced knowledge of one language and intermediate knowledge of the other. In Spanish, advanced knowledge may be demonstrated by taking Spanish 203 or any course with a higher number. In Portuguese, advanced knowledge may be demonstrated by taking Portuguese 205 or any course with a higher number. To acquire intermediate knowledge of Spanish requires completion of Spanish 104, Intermediate Spanish; in Portuguese, it requires completion of Portuguese 200, Intermediate Portuguese.

Upon petition, a student may offer a Native American language as a substitute for either Spanish or Portuguese. Normally, no more than 6 hours of work in 100-level courses may be counted toward the major. However, when students take intermediate-level courses in more than one language, one course in one of these languages may count toward the major.

2. *Core Area Requirement.* Students are required to complete 21 hours of core area courses, consisting of the following:

- LAS 290, Interdisciplinary Research Methods; LAS 201, Introduction to Latin America; History 160, Colonial Latin America; History 161, Modern Latin America.
- Three of the following: Anthropology 210, Peoples and Cultures of Latin America or Anthropology 212, Ancient American Civilizations; Economics 222, Latin American Economic Development; Political Science 215, Change in Developing Countries, or Political Science 217, Latin American Politics, or Political Science 228, International Politics of Latin America; Portuguese 223, Culture and Civilization of the Portuguese-Speaking World, or Portuguese 232, Brazilian Literature

through the Nineteenth Century; Sociology 277, Contemporary Latin America; Spanish 203, Introduction to Spanish and Spanish American Literature, or Spanish 221, Spanish Civilization, or Spanish 223, Spanish American Civilization.

3. *Area of Concentration Requirement.* Students must complete 12 hours from one of the following areas of concentration. Courses that are employed to satisfy the language requirement or the core area requirement may not also count toward the 12-hour area specialization requirement.

History.

258, Rise of the Iberian Atlantic Empires, 1492–1700; 259, Decline of the Iberian Atlantic Empires, 1700–1820; 261, Colonial Mexico; 262, Modern Mexico; 263, Southern South America since 1800; 264, Brazilian Civilization; 265, Central America from Conquest to Revolution; 266, Reform and Revolution in Latin America; 294, Selected Topics in History; 295, Undergraduate Seminar in History; 296, Independent Study in History.

Language, Literature, and Art and Art History.

SPANISH: 203, Introduction to Spanish and Spanish American Literature; 213, Translation and Interpretation; 221, Spanish Civilization; 223, Spanish American Civilization; 230, Development of Lyric Poetry; 231, The Origins of Spanish Literature; 232, Literature of the Spanish Golden Age; 233, Modern Spanish Literature; 234, Contemporary Spanish Literature; 235, Spanish American Literature; 236, Contemporary Literature of Spanish America; 237, Contemporary Lyric Poetry; 239, Development of the Novel; 240, The Contemporary Novel; 244, Afro-Hispanic Literature; 246, Don Quixote; 251, Development of Drama; 252, Contemporary Drama; 260, Development of the Short Story; 289, Independent Study; 293, Contemporary Latin American Prose Fiction in English Translation; 294a–294b, Special Topics.

PORTUGUESE: 223, Culture and Civilization of the Portuguese-Speaking World; 232, Brazilian Literature through the Nineteenth Century; 289, Independent Study; 294, Special Topics in Portuguese Language, Literature, or Civilization.

ART AND ART HISTORY: 234, Twentieth-Century Mexican Literature, Film, and Art; 245, Art of Pre-Columbian America; 256, Art of the Maya; 257, Mesoamerican Art; 289, Independent Research; 294, Selected Topics.

MUSIC: 250, Latin American and Caribbean Music.

Social Sciences.

ANTHROPOLOGY: 210, Peoples and Cultures of Latin America; 212, Ancient Mesoamerican Civilizations; 213, The Archaeology of the Ancient Maya Civilization; 220, Peoples and Cultures of Mexico; 224, Political Anthropology: Crosscultural Studies in Conflict and Power; 226, Myth, Ritual, Belief: The Anthropology of Religion; 245, Art of Pre-Columbian America; 247, The Aztecs; 248, Ancient Empires and Civilizations of South America; 249, Indians of South America; 250, Shamanism and Spiritual Curing; 253, Ancient Civilizations of Mexico; 254, The Inca Empire; 275, Sociocultural Field Methods.

ECONOMICS: 222, Latin American Economic Development; 288, Development Economics; 291a–291b, Independent Study. Students who successfully complete an Economics course on this list numbered 260 or higher may also receive Area of Concentration credit for

successfully completing Economics 231 or 232.

POLITICAL SCIENCE: 215, Change in Developing Countries; 217, Latin American Politics; 218, Social Reform and Revolution; 228, International Politics of Latin America; 287–288, Seminars in Selected Topics; 289a–289b, Independent Research.

SOCIOLOGY: 277, Contemporary Latin America; 281, Development for a Small Planet; 291, The Structure of Modern Spanish Society (offered in Madrid); 294, Seminars in Selected Topics; 299, Independent Research and Writing.

Honors Program

Although the center does not have its own courses for the honors program, a major may enroll in the honors program in one of the departments whose courses are listed in the areas of concentration. Portions of the 42 hours may be taken in the honors program and, in conformity with the general regulations of the College, each student enrolled in this program will be given an examination by a board of the center faculty, chosen in consultation with the student and the advisers.

Minor in Latin American Studies

The Center for Latin American and Iberian Studies also offers a minor in Latin American Studies. Students must choose a thematic focus and take 15 hours of approved courses with Latin American content distributed as follows:

1. Latin American Studies 201;
2. a minimum of 3 hours of Latin American history;
3. a minimum of 3 hours of relevant work in the social sciences; and
4. a minimum of 3 hours of relevant work in language, literature, and fine arts.

In addition, students must demonstrate language competency in one of the following three ways. Courses taken to satisfy the language requirement may not be counted toward the 15 hours of core courses.

- a. Advanced knowledge in either Spanish or Portuguese. In Spanish, this requires taking Spanish 203 or any course with a higher number. In Portuguese, this requires taking Portuguese 205 or any course with a higher number.
- b. Intermediate knowledge in both Spanish and Portuguese. In Spanish, this requires completing Spanish 104; in Portuguese, it requires completing Portuguese 200. Upon petition, a student may offer a Native American language through the intermediate level as a substitute for either Spanish or Portuguese.
- c. Full-time study in the fall or spring semester at Vanderbilt in Spain or Vanderbilt in Latin America.

Course selection must be approved by the undergraduate adviser of the Center for Latin American and Iberian Studies.

Latin American Studies 115W. Freshman Seminar. [3]

Latin American Studies 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. SPRING. [3] Staff.

Latin American Studies 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. SPRING. [3] Eakin, Partridge (Human and Organizational Development).

Latin American Studies 280a–280b. Internship. 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, completion of 6 hours of Latin American Studies, and prior approval of the director of undergraduate studies of the student's plans are required.

Latin American Studies 280a. Internship Research and Readings. FALL, SPRING, SUMMER. [Variable credit: 1–6]

Latin American Studies 280b. Internship Training. Offered on a Pass/Fail basis only and must be taken concurrently with 280a. Hours of 280b can not be included in the minimum number of hours counted toward the Latin American Studies major or minor. FALL, SPRING, SUMMER. [Variable credit: 1–9]

Latin American Studies 289a–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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 12 over a four-semester period]

Latin American Studies 290. Interdisciplinary Research Methods. Principal research methods and sources necessary for the study of Latin America in the social sciences and humanities. FALL. [3] Covington, Lang (Sociology).

Latin American Studies 294a. Special Topics in Latin American Studies. Selected special topics suitable for interdisciplinary examination from the perspective of the social sciences and humanities, as announced in the *Schedule of Courses*. [3]

Managerial Studies

PROFESSOR William W. Damon

ADJUNCT ASSISTANT PROFESSORS Michael R. Burcham, Kevin Clark, David H. Furse

THE College offers a series of minors in the liberal arts tradition to help students understand management functions, corporate strategy, and organizational leadership. These minors are administered by the Managerial Studies Program. Each minor appeals to students with specific interests and aspirations. Each has a basis in economics, accounting, and statistics. Calculus is prerequisite to the statistics course.

Students interested in professional careers in management or finance typically complete a master of business administration or other professional degree. Such programs expect students to have had several years of significant work experience before admission. A minor in managerial studies may direct students in their search for appropriate work experience. The program is directed by William Damon, Professor of Economics. For additional information, contact Jane Connelly, 324 Wilson Hall, (615) 322-4021.

Minor in Managerial Studies: Corporate Strategy

The minor in corporate strategy draws upon courses in Financial Economics (FnEc), Communication Studies (CMST), and courses offered by the Managerial Studies Program (MGRL). The minor requires 21 credit hours. The following five courses are required:

Econ 150 Economic Statistics (or Math 218 and Math 218L)
 FnEc 140 Accounting
 MGRL 198 Corporate Strategy
 FnEc 240 Corporate Finance
 MGRL 190 Principles of Marketing

In addition, two courses are to be elected from the following list:

MGRL 195 The Entrepreneurial Challenge
 MGRL 196 Entrepreneurship: The Business Planning Process
 FnEc 220 Managerial Accounting
 FnEc 275 Financial Management
 CMST 204 Organizational and Managerial Communications

One semester of calculus is prerequisite to Econ 150; two semesters of calculus are prerequisite to Math 218 and 218L.

Minor in Managerial Studies: Information Systems

The minor in information systems is a joint program of the College of Arts and Science and the School of Engineering. The minor requires 12

credit hours in the Department of Economics and at least 9 credit hours in the Department of Computer Science as follows:

Econ 100 Principles of Macroeconomics
Econ 101 Principles of Microeconomics
Econ 150 Economic Statistics or Math 218 Introduction to Mathematical Statistics (and Math 218L Statistics Laboratory)
FnEc 140 Accounting
CS 101 Programming and Problem Solving
CS 201 Program Design and Data Structures
CS 265 Introduction to Database Management

One semester of calculus is prerequisite to Econ 150 (or Math 218 and 218L). Students majoring in Economics must count Econ 100, 101, and 150 (or Math 218 and 218L) towards that major. In order to satisfy the requirement that a minor contain 15 hours not counted for any major, they can complete this minor by taking FnEc 140, the three listed Computer Science courses, and one additional Computer Science course.

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 12 credit hours in the Department of Economics and 12 credit hours in organization and leadership courses in Human and Organizational Development at Peabody as follows:

Econ 100 Principles of Macroeconomics
Econ 101 Principles of Microeconomics
Econ 150 Economic Statistics (or Math 218 Introduction to Mathematical Statistics and Math 218L Statistics Laboratory)
FnEc 140 Accounting
HOD 1200 Understanding Organizations
HOD 1700 Systematic Inquiry
HOD 2700 Leadership in Theory and Practice or HOD 2720 Advanced Organization Theory

And one elective from the following:

HOD 2710 Challenges of Leadership
HOD 2720 Advanced Organization Theory
HOD 2730 Introduction to Human Resources Development
HOD 2740 Human Resource Management

Students electing two minors: Students choosing to minor in two of the three Managerial Studies minors may “double-count” up to 12 hours.

The following courses are offered by the Managerial Studies Program:

Managerial Studies 190. Principles of Marketing. Analysis of marketing functions, activities, and institutions. Characteristics of markets, buying habits and motives, brand policies, channels of distribution, price determination, sales programs, and government regulations. Case studies and readings. FALL, SPRING. [3] Furse.

Managerial Studies 195. The Entrepreneurial Challenge. Defining the entrepreneur and exploring entrepreneurial skills, behavior, and thinking. Course topics: (1) building a business plan; (2) acquiring resources and start-up financing, such as bootstrapping, angel financing, and venture capital; (3) entrepreneurial issues in managing and growing an enterprise; (4) being entrepreneurial in large companies, known as *entrepreneuring*, and (5) how to be entrepreneurial in not-for-profit ventures and foundations. Format: Lecture, discussion, guest speakers, and team project. FALL, SPRING. [3] Furse.

Managerial Studies 196. Entrepreneurship: The Business Planning Process. Developing the components and sequence of a successful business plan. Course topics: (1) understanding the audience for whom the plan is written; (2) describing the business concept and how it produces income; (3) creating the marketing plan—who will buy the product and why; (4) building the financial plan—income statement, balance sheet, cash flow, operating budgets, risk assessment, and management; (5) designing the organizational plan—people, culture, mission, vision, value, core competencies, and managing growth; and (6) operational planning—sorting raw materials, production process, logistics, and contingency planning. Prerequisite: FnEc 140 and MGRL 195. SPRING. [3] Burcham.

Managerial Studies 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. FALL, SPRING. [3] Clark.

Managerial Studies 235. Selected Topics in Managerial Studies. Topics of special interest, as announced in the *Schedule of Courses*. May be repeated for credit with variation of topic. FALL, SPRING. [3] Staff.

Managerial Studies 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. FALL, SPRING. [Variable credit: 1–3; may not be repeated] Staff.

Mathematics

CHAIR Michael L. Mihalik

VICE CHAIR Philip S. Crooke III

DIRECTOR OF UNDERGRADUATE STUDIES Matthew Gould

DIRECTOR OF GRADUATE STUDIES Michael D. Plummer

DIRECTOR OF TEACHING Jo Ann W. Staples

PROFESSORS EMERITI Richard F. Arenstorf, Billy F. Bryant, Richard R. Goldberg,

Robert L. Hemminger, Ettore F. Infante, Bjarni Jónsson, Charles S. Kahane,

James R. Wesson, Horace E. Williams

PROFESSORS John F. Ahner, Akram Aldroubi, Dietmar Bisch, Alain Connes,

Philip S. Crooke III, Emmanuele DiBenedetto, Paul H. Edelman, Matthew Gould,

C. Bruce Hughes, Gennadi Kasparov, Ralph N. McKenzie, Charles K. Megibben,

Michael L. Mihalik, Alexander Ol'Shanskiy, Michael D. Plummer, John G. Ratcliffe,

Edward B. Saff, Mark V. Sapir, Larry L. Schumaker, Constantine Tsinakis,

Glenn F. Webb, Daoxing Xia, Guoliang Yu

VISITING PROFESSORS Andras Króó, A. L. Levin, G. T. Lopez, N. Christopher Phillips

ASSOCIATE PROFESSORS Mark N. Ellingham, Jonathan D. Farley, Douglas P. Hardin,

Mary Ann Horn, Richard J. Larsen, Marian Neamtu, Eric Schechter, Gieri Simonett,

Steven T. Tschantz, Dechao Zheng

ASSISTANT PROFESSORS Daphne Manoussaki, Miklós Maróti, Remus Nicoara,

Denis Ossine, Christoph Walker, Nicholas Wright, Eric Zenk

RESEARCH ASSISTANT PROFESSORS Maria Kiskowski, Laurent Pujo-Menjouet

SENIOR LECTURERS Linda Hutchison, Zohair Issac, Pamela Pigg, John Rafter,

Lori Rafter, Jo Ann W. Staples

1 THE Department of Mathematics offers an undergraduate major with several types of emphasis. Students planning to continue in graduate study may choose an emphasis in pure mathematics. Students with other interests emphasize applied mathematics, statistics, or preparation for teaching. A solid background in mathematics provides an excellent foundation for several professions—many students go on to professional studies in law, medicine, or business.

Program of Concentration in Mathematics

Two programs of concentration are available. Program I is intended for most mathematics majors in the College of Arts and Science and requires a minimum of 32 hours in the department. Program II is intended for students in the School of Engineering who elect a second major in mathematics, but is also available for other students. Program II requires a minimum of 29 hours in the department in addition to 6 hours outside the department. Requirements for the two programs are summarized below.

Program I.

1. A calculus sequence (150a–150b–170a–170b or 155a–155b–175).
2. Linear algebra (204).
3. Differential equations (208).

4. At least four courses from among 200, 210, 215, 218, 219, 221, 223, 226, 229, 234, 240, 242, 246, 247, 248, 250, 253, 259, 260, 261, or any course above 261.
5. The remainder of the hours must be chosen from courses at the 200 level or above.

Program II.

1. A calculus sequence (155a–155b–175).
2. Linear algebra (194 or 204).
3. Differential equations (198 or 208).
4. At least four courses from the list in item 4 under Program I.
5. The remainder (if any) of the hours required in the department must be chosen from courses at the 200 level or above.
6. 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 obtain a physics major or a major in the School of Engineering.

Adjustments in these requirements are made for students who begin their college mathematics at an advanced level. If 150a–150b–170a–170b is used as the calculus sequence, the minimum hour requirement is increased to 33 in Program I and to 30 in Program II.

To help students plan their programs, the department offers the following suggestions for those who plan to teach, work in the computer field, or go to graduate school. For students planning to teach in secondary school, the department recommends Math 218, 223, 240, and 252. The programs of students planning to work in the computer field should include 226 with 198, 218, (or 247–248), 274, and 286 strongly recommended; computer courses should be selected in consultation with the student's adviser (the student is reminded that credit in these courses does not count toward a mathematics major). Preparation for graduate work in mathematics should include at least 12 hours from 260, 272a–272b, 283a–283b, 330a.

Minor in Mathematics

The minor in mathematics requires completion of 175 or 170b and an additional 12 hours in the department as follows:

1. Linear algebra (194 or 204).
2. Differential equations (198 or 208).
3. Six hours chosen from courses at the 200 level or higher.

Honors Program

The Department of Mathematics offers honors work for qualified majors. To enroll in the honors program, a student should normally apply at the time of declaration of the major. Honors students include independent study in their schedules, and they are required to submit a senior thesis. The department may be consulted for further details.

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.

Students who have credit for any course numbered 140 or above may not receive credit for any of the courses 127a, 127b, 133 without departmental approval.

Precalculus courses (100–139)

127a–b. Probability and Statistical Inference. A survey of probability models and statistical inference for students not planning to major in science or mathematics. Emphasis is on applications of statistical techniques. Discrete probability models, sampling theory, confidence intervals, hypothesis testing, correlation and regression, chi-square tests. 127a is a prerequisite for 127b. [3–3] Staff.

133. Pre-calculus Mathematics. Designed for students who plan to take either 150a–150b or 155a–155b but need a stronger background in algebra and trigonometry. Topics include inequalities, functions, graphs, trigonometric identities, and theory of equations. FALL, SPRING. [3] Pigg.

Several calculus sequences are available: 140; 150a–150b–170a–170b; 155a–155b–175. They differ in content and credit hours, and students should not switch from one to another without approval of the department. Such switching may result in withdrawal of credit.

Calculus courses (140–179)

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. FALL, SPRING. [4] Hutchison.

150a–150b. First-year Calculus. 150a: functions, limits, differentiation of algebraic functions, applications of differentiation, integration. 150b: differentiation and integration of transcendental functions, methods of integration. FALL, SPRING. [3–3] Staff.

155a–155b. First-year Accelerated Calculus. 155a: functions, limits, differentiation of algebraic functions, integration, applications including extrema problems, areas, volumes, centroids, and work. 155b: differentiation and integration of transcendental functions, applications, methods of integration, coordinate geometry, polar coordinates, infinite series. FALL, SPRING. [4–4] Staff.

165. Honors Mathematics I. An intensive course designed for freshmen with high aptitude and achievement, who already have some background in calculus. Topics include axioms of the real number system, limits, integrals, transcendental functions, polar coordinates, sequences, and infinite series. FALL. [4] (Not currently offered)

170a–170b. Second-year Calculus. Analytic geometry, polar coordinates, infinite series, vectors, parametric equations, vector analysis, partial differentiation, and multiple integrals. Prerequisite for 170a: 150b. 170a FALL, SPRING; 170b SPRING. [3–3] Staff.

175. Second-year Accelerated Calculus. Indeterminate forms, solid analytic geometry, vectors in three space, partial derivatives, multiple integrals. Prerequisite: 155b or equivalent. FALL, SPRING. [3] Staff.

Post-calculus courses (180–209)

180. Fundamentals of Probability and Statistics. Combinatorics, laws of probability, regression analysis, normal curves, the Z transformation, probability as an integral, discrete and continuous probability models, principles of hypothesis testing, statistical methods (goodness-of-fit tests, t tests, introduction to the analysis of variance, χ^2 tests). Does not count toward a major in mathematics. Prerequisite: 140, 150a, or 155a. SPRING. [3] Staff.

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. Some basic elements of linear programming. No credit for students who have completed 204 or 205a. Corequisite: 170b or 175. FALL, SPRING. [3] Staff.

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 Electrical Engineering and Computer Engineering. Credit is not given for both 194 and 196, nor for both 198 and 196. FALL, SPRING. [4] Staff.

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. Prerequisite: 170b or 175 or consent of department. Credit is not given for both 198 and 208. FALL, SPRING. [3] Staff.

One year of calculus is prerequisite to all courses numbered above 200.

200. Intensive Problem Solving and Exposition. Intended to develop widely applicable mathematical skills. Focus on use of basic principles such as induction, the pigeonhole principle, symmetry, parity, and generating functions. Prerequisite: one year of calculus and consent of instructor. [3] (Not currently offered)

201. Introduction to *Mathematica*™. Techniques of the computer language *Mathematica*™ with applications to topics from calculus, differential equations, and linear algebra. Emphasis on individual research, including a final project of the student's choosing. Prerequisite: linear algebra and differential equations. SUMMER. [3] Issac.

204. Linear Algebra. Algebra of matrices, real and complex vector spaces, linear transformations, systems of linear equations. Eigenvalues, eigenvectors, Cayley-Hamilton theorem. Inner product spaces, orthogonal bases. Hermitian matrices. Designed primarily for mathematics majors. No credit for students who have completed 194 or 205a. Corequisite: 170b or 175. FALL, SPRING. [3] Staff.

205a. Honors Mathematics II. An introduction to linear spaces, bases, dimension, inner product spaces, linear transformations, matrix algebra, determinants, systems of linear equations, eigenvalues, eigenvectors, Hermitian and unitary transformations, quadratic forms. SPRING. [4] (Not currently offered)

205b. Honors Mathematics III. Calculus of n-space, partial and directional derivatives, gradients, chain rule, implicit functions, extrema and saddle points, line integrals and applications, potential functions, multiple integrals, Green's theorem, surface integrals. Stokes' theorem, series, uniform convergence. [4] (Not currently offered)

208. Introduction to Ordinary Differential Equations. First- and second-order differential equations, applications, linear differential equations, series solutions, boundary-value problems, existence and uniqueness theorems. This course is intended for mathematics and

advanced science majors. Prerequisite: linear algebra, and 170b or 175 or equivalent. Credit is not given for both 198 and 208. FALL, SPRING. [3] Staff.

Intermediate undergraduate courses (210–239)

210. Axiomatic Geometry. Hilbert's axioms, neutral geometry, Euclidean geometry, independence of the Parallel Postulate, non-Euclidean geometry. The theory developed axiomatically. Emphasis on rigorous mathematics proofs. Prerequisite: 170b or 175. SPRING. [3] (Not currently offered)

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: linear algebra. FALL. [3] (Not currently offered)

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. Credit is not given for both 216 and 218. SPRING. [3] Staff.

218. Introduction to Mathematical Statistics. A survey of probability and applied and mathematical statistics. Discrete and continuous probability models, mathematical expectation, laws of large numbers, point estimation, confidence intervals, hypothesis testing, nonparametric techniques, applications. Students taking 218 are strongly urged to take 218L concurrently. Prerequisite: 155b or 170a or consent of instructor. FALL, SPRING. [3] Larsen, Staff.

218L. Statistics Laboratory. Applications of the theory developed in 218. Emphasis on data analysis and interpretation. Topics covered include the one- and two-sample problems, paired data, correlation and regression, chi-square, model building. Examples are drawn from many disciplines. Corequisite: 218 or equivalent. FALL, SPRING. [1] Larsen.

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, 2^n designs, fractional factorials, confounding, introduction to response surface methodology. Applications will be emphasized. Prerequisite: 218 or equivalent. SPRING. [3] Larsen.

221. Theory of Numbers. The Euclidean algorithm, Euler's phi function, simple continued fractions, congruences, Fermat's theorem, Wilson's theorem, and elementary Diophantine equations. FALL, SPRING. [3] Staff.

223. Concepts of Abstract Algebra. Fundamental properties of integers and polynomials. Elementary properties of groups, rings, integral domains, fields and lattices. Prerequisite: 194 or 204. FALL, SPRING. [3] Staff.

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.

Prerequisite: computer programming and linear algebra, differential equations. FALL, SPRING. [3] Staff.

229. Advanced Engineering Mathematics. Vector analysis including directional derivatives, transformation of coordinates, divergence and curl. Line integrals, surface integrals, divergence theorem. Stokes' theorem. Functions of a complex variable, including limits, derivatives, Cauchy-Riemann equations, exponential, trigonometric, hyperbolic, and logarithmic functions. Complex integrals, Cauchy's integral theorem and formula. Taylor and Laurent series. Calculus of residues. Prerequisite: ordinary differential equations. SPRING. [3] Ahner.

234. Methods for Initial and Boundary-Value Problems. Construction of the solutions to initial- and boundary-value problems for partial differential equations using separation of variables in conjunction with Fourier series and integrals. Emphasis on obtaining explicit formulas for the solutions of various problems involving the heat equation, the wave equation, and Laplace's equation. Prerequisite: elementary differential equations. Recommended: linear algebra. FALL, SPRING. [3] Staff. (Not currently offered)

Advanced undergraduate courses (240–269)

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: linear algebra. FALL. [3] Ratcliffe.

242. Topology of Surfaces. Fundamental concepts of topology, including properties of continuity, compactness, and connectivity. Topology of surfaces, triangulations, and the fundamental group. Introduction to basic ideas of graph theory, vector fields, and Euclidean and hyperbolic geometry. SPRING. [3] Hughes.

246. Introduction to Actuarial Mathematics. Applications of calculus and probability to actuarial science. The mathematical foundations of financial mathematics including the theory of interest and multivariate probability distributions. Prerequisite: 170b or 175, and 216 or 218. FALL. [3] Hardin.

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. Prerequisite: a firm background in intermediate calculus including partial derivatives and multiple integrals. Except for students with extremely strong backgrounds, 218 should be taken prior to 247. FALL. [3] Staff.

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. SPRING. [3] Staff.

250. Introduction to Mathematical Logic. Development of the first order predicate calculus and fundamental metamathematical notions. FALL, SPRING. [3] Schechter, Megibben.

252. History of Mathematics. The major developments of mathematics from ancient times to the early part of this century. Emphasis both on historical perspective and on the mathematics; assignments include many exercises and theorems. Prerequisite: completion of 170b or 175 or their equivalent and some algebra (preferably both linear algebra and abstract algebra) or consent of instructor. Especially recommended for teacher candidates. FALL. [3] Issac.

253. Error-correcting Codes. The algebraic theory of error-correcting codes for information transmission. Block codes, the binary symmetric channel, length, rate and distance. Linear codes, bounds, syndrome decoding, perfect codes, Reed-Muller codes. Cyclic, BCH, and Reed-Solomon codes. Prerequisite: linear algebra. FALL. [3] Staff.

259. Advanced Calculus. Properties of real numbers, 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 upper-division mathematics courses. Prerequisite: 170b or 175. FALL. [3] Staff.

260. Introduction to Analysis. Elementary topological concepts including compactness and completeness. Functions of several variables, continuity, differentiability, the Riemannian integral, inverse function theorem, implicit function theorem, and function spaces. Intended for students who desire a deeper understanding of the fundamental mathematical principles first encountered in calculus. Prerequisite: 170b or 175. SPRING. [3] Staff.

261. Complex Variables. Study of complex numbers, analytic and elementary functions, transformations of regions, properties of power series, including Taylor's and Laurent's. The calculus of residues with applications, conformal mapping with emphasis upon boundary value applications. Prerequisite: 196 or 198 or 208. SPRING. [3] Staff.

267. Selected Topics for Undergraduates. Topics of special interest at a level suitable for undergraduates, as announced in the *Schedule of Courses*. FALL, SPRING. [Variable credit: 1–3, total of all 267 and 297 courses not to exceed a total of 12] Webb, Tschantz.

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. FALL, SPRING. [3] Staff.

Introductory graduate or advanced undergraduate courses (270–299)

270. Differential Geometry. Curvature, torsion, vector fields, and the Frenet formulas for curves in R^3 . Review of continuity and differentiation in R^n , Stokes' theorem and applications, fundamental forms and the shape operator, geodesics, and Gaussian curvature for surfaces in R^3 . The Euler characteristic and the Gauss-Bonnet theorem. Prerequisite: 259a or equivalent. SPRING. [3] Kasparov.

272a–272b. Topology. 272a: Connectedness, compactness, countability, and separation axioms. Complete metric spaces. Function spaces. 272b: The fundamental group and covering spaces. Topology of surfaces. Simplicial complexes and homology theory. Homotopy theory. Prerequisite: 242. [3–3] Mihalik.

274. Introduction to 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). SPRING. [3] Ellingham.

275. Graph Theory. An introduction to basic concepts and theorems in graph theory with applications. Path problems, matching theorems, planar graphs and Kuratowski's theorem. Ramsey's theorem, directed graphs, network flow, and the four-color problem and other unsolved problems. Prerequisite: linear algebra. FALL. [3] Edelman.

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: intermediate calculus and linear algebra. FALL. [3] Staff.

283a–283b. Modern Algebra. 283a: Group theory through Sylow theorems and fundamental theorem of finitely generated abelian groups. 283b: Introductory theory of commutative rings and fields, and additional topics such as Galois theory, modules over a principle ideal domain and finite dimensional algebras. Prerequisite: linear algebra. An elementary course in modern algebra (e.g., 223) is strongly recommended. [3–3] Sapir.

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 or equivalent. FALL. [3] Staff.

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 or consent of instructor. [3] (Not currently offered)

287. Nonlinear Optimization. An introduction to modeling, theory and methods for nonlinear optimization problems. Modeling of application problems in science and engineering. Methods of unconstrained optimization with one and several variables. Theory of constrained optimization, including Karush-Kuhn-Tucker conditions. Penalty functions and other methods of constrained optimization. Computer tools such as a subroutine library or symbolic algebra system. Prerequisite: multivariable calculus, linear algebra, and computer programming. SPRING. [3] Ellingham.

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: linear algebra and computer programming. FALL. [3] Ellingham.

292a–292b. Methods of Mathematical Physics. Hermitian forms, unitary transformations, group representations. Vector analysis, elements of differential geometry. Functions of a complex variable, calculus of residues, asymptotic expansions. Ordinary and partial differential equations of mathematical physics, boundary value problems, eigenfunction expansions. Integral equations, Hilbert space methods. Special functions, asymptotic properties. Integral transforms, generalized functions. Prerequisite: ordinary differential equations and linear algebra. [4–4] (Not currently offered)

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: 198 or 208. FALL. [3] Staff.

297. Selected Topics. Topics of special interest, as announced in the *Schedule of Courses*. FALL. [Variable credit: 1–3 each semester, not to exceed a total of 12] Hardin.

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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 6 without departmental permission]

Graduate courses (300–399)

- 312. Algebraic Topology.** [3]
323. Universal Algebra. [3]
330a–330b. Theory of Functions of a Real Variable. [3–3]
331a–331b. Theory of Functions of a Complex Variable. [3–3]
333. Theory of Ordinary Differential Equations. [3]
334. Theory of Partial Differential Equations. [3]
362a–362b. Functional Analysis. [3–3]
364a–364b. Nonlinear Differential Equations and Analytical Dynamics. [3–3]
367. Selected Advanced Topics. [3]
368. Advanced Independent Study. [3]
372a–372b. Seminar in Topology. [Variable credit: 1–3 each semester]
375a–375b. Seminar in Graph Theory. [Variable credit: 1–3 each semester]
381a–381b. Seminar in Number Theory. [Variable credit: 1–3 each semester]
383a–383b. Seminar in Algebra. [Variable credit: 1–3 each semester]
386a–386b. Seminar in Computational Mathematics. [Variable credit: 1–3 each semester]
390a–390b. Seminar in Analysis. [Variable credit: 1–3 each semester]
394a–394b. Seminar in Applied Analysis. [Variable credit: 1–3 each semester]
395a–395b. Seminar in Mathematical Biology. [Variable credit: 1–3 each semester]
398. Directed Study. [Variable credit: 1–3 each semester]

Medicine, Health, and Society

DIRECTOR Matthew Ramsey

Affiliated Faculty

PROFESSORS Larry Churchill (Medicine), Jay Clayton (English), Dennis Dickerson (History), James Foster (Economics), Volney Gay (Religious Studies), Leah Marcus (English), John McCarthy (German)

ASSOCIATE PROFESSORS Kathryn Anderson (Economics), Karen Campbell (Sociology), Beth Conklin (Anthropology), Matthew Ramsey (History), Ruth Rogaski (History), David Schlundt (Psychology), Arleen Tuchman (History), Holly Tucker (French)

1 THE Program in Medicine, Health, and Society offers an interdisciplinary minor (18 hours) for students interested in studying health-related beliefs and practices in their social and cultural contexts. The program draws on a variety of fields in the social sciences and humanities—anthropology, economics, history, psychology, sociology, philosophy/ethics, and religious studies. It will be of particular interest to premedical students 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 may also design an individual interdisciplinary major, which must include at least 48 hours of approved work, under the supervision of an appropriate faculty adviser. In addition to courses in the humanities and social sciences, the program may include up to 18 hours in basic biomedical sciences. The final contract must be approved by the director of the Center for Medicine, Health, and Society and by the Committee on Individual Programs of the College of Arts and Science.

The program is directed by Matthew Ramsey, Associate Professor of History.

Minor in Medicine, Health, and Society

The interdisciplinary minor consists of a minimum of 18 hours of course work, distributed as follows:

1. Medicine, Health, and Society 201, Fundamental Issues in Medicine, Health, and Society (3 hours).

Note: of the 15 remaining hours, no more than 9 may be in the same department; no more than 9 may be in courses designated MHS.

2. Two of the following core courses (6 hours): Anthropology 240, Medical Anthropology; Economics 268, Economics of Health; History 204, History of Medicine; Philosophy 270, Ethics and Medicine; Psychology 268, Health Psychology; Religious Studies 150, Medicine, Healing, and Spirituality; Sociology 237, Society and Medicine.

3. Three additional courses, chosen from the following list of other approved courses:

ANTHROPOLOGY: 106, Evolution and Creationism; 240, Medical Anthropology; 250, Shamanism and Spiritual Curing; 260, Medicine, Culture, and the Body; 267, Life, Death, and the Human Body. *Note that only ONE of the following courses may be counted:* 270, Human Osteology; OR 271, Human Evolution; OR 272, Human Variation.

BIOLOGICAL SCIENCES: *Note that only ONE course in each of the three groups will count.* (1) 105, Human Biology: Heredity and Society; OR 210, Principles of Genetics. (2) 226, Introduction to Immunology; OR 249, Viruses; OR 273, Molecular Mechanisms of Environmental Toxins. (3) 239, Behavioral Ecology; OR 254, Neurobiology of Behavior.

CLASSICAL STUDIES: 171, Ancient Greek Medicine and Its Legacy.

ECONOMICS: 268, Economics of Health.

ENGLISH: 243, Literature, Science, and Technology (as appropriate). *Note: topics vary; the director of the MHS program will approve versions with sufficient MHS content for credit toward the minor.*

HISTORY: 204, History of Medicine; 205, Historical Perspectives on Women, Health, and Sexuality; 206, Medicine, Culture, and the Body (same as Anthropology 260); 221, Sexuality and Gender in the Western Tradition to 1700; 222, Sexuality and Gender in the

Western Tradition since 1700.

HUMAN AND ORGANIZATIONAL DEVELOPMENT (PEABODY): 2500, Health and Human Services Professions; 2510, Health Service Delivery to Diverse Populations; 2530, Introduction to Health Promotion.

MEDICINE, HEALTH, AND SOCIETY: 201, Fundamental Issues in Medicine, Health, and Society; 290, Special Topics; 293a–293b–293c, Internship (*Note: 293a, Internship Training, must be taken Pass/Fail and concurrently with 293b, Internship Research, and/or 293c, Internship Readings; these hours may not be included in the minimum hours required for the MHS minor*); 294a–b–c, Service Learning (*Note: 294a, Service Learning, must be taken Pass/Fail and concurrently with 294b, Service Learning Research, and/or 294c, Service Learning Readings; these hours may not be included in the minimum hours required for the MHS minor*); 296, Independent Study.

PHILOSOPHY: 105, Introduction to Ethics; 206, Technology and Human Values; 239, Moral Problems; 245, Humanity, Evolution, and God; 256, Philosophy of Mind; 270, Ethics and Medicine.

PSYCHOLOGY: *Note: (P) before a course number indicates that the course is offered at Peabody.* 215, Abnormal Psychology; 231, Social Psychology; 232, Mind and Brain; 235, Biological Basis of Mental Disorders; 240, Cognition, Consciousness, and Self; 243, Feminist Approaches to Clinical Practice; 244, Introduction to Clinical Psychology OR (P)2690, Introduction to Clinical Psychology; 245, Emotion; 246, Schizophrenia; 247, Depression; 250, Control of Human Behavior; 252, Human Sexuality; 266, Interpersonal and Intergroup Relations; 268, Health Psychology OR (P)2560, Health Psychology; 277, Brain Damage and Cognition; (P)1200, Minds, Brains, Cultures, and Contexts; (P)1500, Cognitive Aspects of Human Development; (P)1630, Developmental Psychology; (P)1700, Social and Emotional Context of Cognition; (P)1750, Social and Personality Development; (P)2250, Infancy; (P)2320, Adolescent Development.

RELIGIOUS STUDIES: 120, Religion, Sexuality, Power; 150, Medicine, Healing, and Spirituality; 202, Natural Science and the Religious Life; 234, Post-Freudian Theories and Religion; 236, The Religious Self According to Jung

SOCIOLOGY: 220, Population and Society; 237, Society and Medicine; 257, Gender, Sexuality, and the Body; 264, Social Dynamics of Mental Health

WOMEN'S STUDIES: 270, Lesbian Studies: Identity, Desire, and Representation.

Contract Major in Medicine, Health, and Society

The contract major requires a minimum of 48 hours of course work. The contract should include MHS 201 and a minimum of three of the core courses listed above. Additional courses may be chosen from the list of approved MHS courses, or from the Basic Biomedical Sciences option:

Biological Sciences 110ab. Introduction to Biological Sciences.
Biological Sciences 220. Biochemistry I.
Chemistry 220ab. Organic Chemistry.

Other courses may be approved at the discretion of the program director, with the consent of the Committee on Individual Programs.

Neuroscience

DIRECTOR Terry L. Page

DIRECTOR OF HONORS AND INDEPENDENT STUDIES Ford F. Ebner

Affiliated Faculty

PROFESSORS A. B. Bonds (Engineering), Ford F. Ebner (Psychology),

Douglas G. McMahon (Biological Sciences), Jeanette Norden (Medicine),

Terry L. Page (Biological Sciences), Elaine Sanders-Bush (Medicine)

SENIOR LECTURER Leslie M. Smith (Psychology)

1 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 course, Neuroscience 292. More extensive research experience is available through the Honors program in Neuroscience.

The program is directed by Terry L. Page, Professor of Biological Sciences. For additional information, see <http://sitemason.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 (292 or 296), these 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 & Science Courses:

*Biological Sciences 110a-110b, 111a-111b; *Chemistry 102a-102b, Chemistry 219a-219b, Chemistry 220a-220b; *Mathematics 150a-150b or 155a-155b or 165, Physics 116a-116b or 117a-117b or 121a-121b. (Starred courses are prerequisites for certain required courses in the program).

Neuroscience and Related Courses:

Introduction to Neuroscience (required)

Psychology 201

Cellular and Molecular Neuroscience (6 hours required)

Biological Sciences 252, 256, 279, Psychology 269

Systems Neuroscience (3 hours required)

Psychology 216, 235, 236, 272, 284

Integrative/Cognitive Neuroscience (3 hours required)

Biological Sciences 254, Neuroscience 255, Psychology 214, 277

Neuroscience Laboratory (4 hours required)

Biological Sciences 253, Neuroscience 292, Psychology 234

Neuroscience Electives (6 hours required)

Two additional courses from the Neuroscience courses listed above.

One semester each of Neuroscience 292 and 291 may be used to count for one elective course.

Related Course Electives (6 hours required)

Biological Sciences 201, 202, 210, 211, 220, 230, 240, 258, 265, 270; Biomedical Engineering 102, 251, 252; Chemistry 210, 221, 224, 230; Computer Science 101, Electrical Engineering and Computer Science 112, 200; Mathematics 175, 198; Physics 210, 226a, 226b, 229a, 229b; Philosophy 244, 256; Psychology 209, 222, 225, 246, 247, 251, 252, 258, 261.

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 fall 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 stu-

dents are expected to complete at least 8 hours of research course work (Neuroscience 292 or 296). Three of these research hours may count toward neuroscience elective course work. The candidate must present Honors Thesis during the final semester in residence and satisfactorily pass an oral examination by the student's Honor's 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 <http://sitemason.vanderbilt.edu/neuroscience/honorsprogram>.

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:

Psychology 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 292 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,b and 111a,b.

Psychology 201. Neuroscience. A comprehensive introduction to the field of neuroscience from important molecules to cell function to neural systems to cognition. Topics include the physiology of nerve cells, the sensory systems of vision, audition and touch, the motor system, sleep, consciousness, speech and sexual behavior. Coverage of clinical topics includes the chemical basis of the psychoses, diseases of the brain, and repair mechanisms after brain injury. FALL, SPRING. [3] L. Smith, R. Marois.

255. Integrative Neuroscience. Structure and function of nervous systems. Emphasis on vertebrate brain and the relationship of anatomy, physiology, and biochemistry to sensory perception, cognition, motor activity, and learning and memory. Prerequisite: 201. SPRING. [3] Norden.

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 taken twice. FALL, SPRING. [1] Staff; Ebner, coordinator.

292. Undergraduate Research. Original student research on a defined problem in neuroscience under direction of a faculty sponsor. Consent of both faculty sponsor and the director of honors and independent study is required. May be taken for credit more than once. FALL, SPRING. [2] Staff; Ebner, coordinator.

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 taken for credit more than once. FALL, SPRING. [2-4] Staff; Ebner, Coordinator.

Philosophy

CHAIR Michael P. Hodges

DIRECTOR OF UNDERGRADUATE STUDIES Idit Dobbs-Weinstein

DIRECTOR OF GRADUATE STUDIES Gregg M. Horowitz

PROFESSORS EMERITI John J. Compton, Clement Dore, John F. Post,

Donald W. Sherburne

PROFESSORS Lenn E. Goodman, Michael P. Hodges, John Lachs, Kelly Oliver,

Lucius T. Outlaw Jr., John J. Stuhr, Henry A. Teloh, David Wood

ASSOCIATE PROFESSORS Idit Dobbs-Weinstein, Robert R. Ehman, Gregg M. Horowitz,

Jeffrey S. Tlumak

ASSISTANT PROFESSORS Mark J. Bliton, Stuart G. Finder, José Medina, Diane Perpich,

Robert Talisse

SENIOR LECTURERS Kevin Davis, Russell McIntire

1 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.

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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, or 239 (at least 3 hours); History of Philosophy: 210, 211, 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 in Philosophy

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 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 High 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.

Course 100 or 100W or 105 or 115 or 115W is ordinarily taken prior to all other philosophy courses, except 102 and 202 (logic courses), 244 (philosophy of science), and 240 (aesthetics).

100, 100W. Introduction to Philosophy. An introduction to the basic problems of philosophy based upon readings in the works of selected leading philosophers. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Lachs, Teloh.

115, 115W. Freshman Seminar. [3]

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. SPRING. [3] (Not currently offered)

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. FALL. [3] Medina.

210. Ancient Philosophy. An examination of the major Greek and Roman philosophers with emphasis on the works of Plato and Aristotle. FALL. [3] Teloh.

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. SPRING. [3] Goodman.

212. Modern Philosophy. An examination of the major philosophers of modern Europe from Descartes and Spinoza through Locke, Berkeley, Hume, and Kant. SPRING. [3] Tlumak.

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] (Not currently offered)

217. Metaphysics. Selected problems in metaphysics such as ultimate explanation, meaning of existence, time and eternity, freedom and determinism, and science and religion. [3] (Not currently offered)

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] (Not currently offered)

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. FALL. [3]

222. American Philosophy. A study of the works of selected American philosophers from the colonial period to the present. SPRING. [3] Stuhr.

224. Existential Philosophy. A study of two or three existential philosophers and selected problems that arise in relation to their thought. [3] (Not currently offered)

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] (Not currently offered)

228. Nineteenth-Century Philosophy. A study of selected themes and writings from nineteenth-century European philosophers. [3] (Not currently offered)

231. Philosophy of History. Focus on alternative conceptions of time and history in Aristotle, Augustine, Kant, Hegel, Heidegger, and Benjamin. [3] Dobbs-Weinstein. (Not currently offered)

234. Philosophy of Education. Analysis of educational concepts. Educational implications of theories of knowledge and theories of the individual. Emphasis on higher education. FALL. [3] Hodges.

235. Feminist Philosophy. Recent issues in feminist thought including the gender/sex distinction, sexuality, embodiment and feminist epistemology. FALL. [3] Perpich.

238. Contemporary Ethical Theory. A study of theories about the cognitive foundations of ethical discourses. Prerequisite: 105. [3] (Not currently offered)

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. Prerequisite: 105. [3] (Not currently offered)

240. Aesthetics. The leading accounts of the nature of art, the character of aesthetic experience, the nature of artistic creation, and selected problems associated with art in specific media. FALL. [3] Horowitz.

241. Contemporary Issues of Aesthetics. Problems posed by modern, avant-garde, and contemporary art, including abstraction, non-traditional media such as happenings and installations, and political art. Topics include the aims of new art, the changing role of the spectator/reader/listener, and transformations of the sites of artistic experience. SPRING. [3] Horowitz.

242. Philosophy of Religion. A study of various problems concerning religious experiences; ideas about religion and divinity. FALL. [3] Tlumak.

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] (Not currently offered)

244. Philosophy and the Natural Sciences. Philosophical issues in the methodology, conceptual structure, patterns of explanation, historical development, cultural impact, and metaphysical and ethical implications of the natural sciences. Prerequisite: satisfaction of the Basic Science requirement. SPRING. [3] Medina.

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. SPRING. [3] Goodman.

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. FALL. [3] Medina.

247. Kierkegaard and Nietzsche. A study of selected works. [3] Wood. (Not currently offered)

252. Political and Social Philosophy. A study of selected social and political theories. Critical analysis of the relevant works of Hegel, Marx, Lenin, Mill, Nietzsche, Gentile, and others. FALL. [3] Teloh.

253. Philosophy and Economic Policies. A study of individual freedom, property rights, and welfare in their implications for a free market, private ownership of means of production, taxation, and expenditure for public goods. Readings from selected philosophers and economists—e.g., Locke, Hegel, Rawls, Nozick, Marx, Hayek, Friedman, Galbraith. [3] (Not currently offered)

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] (Not currently offered)

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. SPRING. [3] Medina.

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. SPRING. [3] Dobbs-Weinstein.

258. Contemporary Political Philosophy. The emergence of post-liberal political thought. The politics of recognition, the specificity of political action, transformations in political theory as a consequence of gender, race, and environmental issues. These will be studied through the examination of the writings of Hannah Arendt, Cornelius Castoriadis, Heidegger, Derrida, and Habermas. [3] (Not currently offered)

260. Twentieth-Century Continental Philosophy. A study of selected twentieth-century philosophers such as Derrida, Foucault, and Lacan. FALL. [3] Wood.

261. Jewish Philosophy. Introduction to Jewish philosophy and the philosophical achievement of such major figures as Philo, Saadia, Maimonides, Levinas, and selected contemporary thinkers. Goodman. (Not currently offered)

262. Islamic Philosophy. Introduction to the major figures of Islamic philosophy including Kindi, Razi, Farabi, Avicenna, and Ibn Khaldun. [3] Goodman. (Not currently offered)

263. French Feminism. Introduction to the tradition of French feminist philosophy, including relevant works by Beauvoir, Cixous, Irigaray, Kristeva, LeDoeuff, Kofmann, and others. [3] Perpich. (Not currently offered)

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 115W, section 13. Prerequisite: 105. SPRING. [3] Bliton.

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] Lachs. (Not currently offered)

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. Prerequisite: 105. SPRING. [3] Davis.

289a–289b. Independent Readings. Designed for majors not in the 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. FALL, SPRING. [Variable credit: 1–6 each semester, not to exceed 12 over a four-semester period] Staff.

294a–294b. Selected Topics. Students may enroll in more than one section of this seminar each semester. [3 each seminar, not to exceed 12 over a four-semester period] Staff.

295. Independent Study. Designed for students in the Honors program in philosophy. Consists of guided reading, periodic reports, and work on Honors thesis. FALL, SPRING. [Variable credit: 3–6 each semester, not to exceed 18 over a three-semester period] Staff.

310. Seminar: Theory of Knowledge. [3]

312. Seminar: Plato. [3]

314. Seminar in Medieval Philosophy. [3]

318. Seminar: Contemporary Naturalism. [3]

320. Seminar: Metaphysics. [3]

325. Seminar: Husserl. [3]

326. Seminar: Heidegger. [3]

327. Seminar: Heidegger after *Being and Time*. [3]

328. Seminar: Philosophy of Religion. [3]

329. Readings in Contemporary Continental Philosophy. [3]

330. Seminar in Philosophy. [3]

332. Seminar: History of Philosophy. [3]

335. Philosophy and Medicine: I. [3]

336. Philosophy and Medicine: II. [3]

340. Readings in Philosophy. [Variable credit: 1–3]

341. Philosophical Readings in French. [3]

342. Philosophical Readings in German. [3]

343. Philosophical Readings in Classical Languages (Latin or Greek). [3]

344. Philosophical Readings in Logic. [3]

345. Hermeneutics. [3]

Physics and Astronomy

CHAIR Robert J. Scherrer

DIRECTOR OF UNDERGRADUATE STUDIES David A. Weintraub

DIRECTOR OF GRADUATE STUDIES Charles F. Maguire

PROFESSORS EMERITI John Paul Barach, Douglas S. Hall, Arnold M. Heiser,

Wendell G. Holladay, E. A. Jones, P. Galen Lenhart, Robert S. Panvini, C. E. Roos

PROFESSORS Royal G. Albridge, Charles A. Brau, Frank E. Carroll Jr., Walter J. Chazin,

Louis DeFelice, David J. Ernst, Leonard C. Feldman, Daniel M. Fleetwood,

John C. Gore, Richard F. Haglund Jr., Dennis G. Hall, Joseph H. Hamilton,

Charles F. Maguire, Volker E. Oberacker, Sokrates T. Pantelides, James Patton,

David W. Piston, Ronald R. Price, Akunuri V. Ramayya, Robert J. Scherrer,

Norman H. Tolk, A. Sait Umar, Medford S. Webster, Thomas Joseph Weiler,

John P. Wikswo Jr.

DISTINGUISHED RESEARCH PROFESSOR C. Robert O'Dell

ADJUNCT PROFESSORS Walter A. Greiner, Donald A. Gunter, Dennis P. Weygand

ADJOINT PROFESSORS W. Ralph Butler, Amand Faessler, Michael V. Glazov,

Donald D. Henderson, O. Wayne Holland, Charles H. McGruder, Stephen Pennycook

ASSOCIATE PROFESSORS Charles Coffey, Steven E. Csorna, Senta V. Greene,

Tobias Hertel, Thomas W. Kephart, Sandra J. Rosenthal, Paul D. Sheldon,

David A. Weintraub, Robert A. Weller

ADJOINT ASSOCIATE PROFESSORS Arnold Burger, Richard Mu

ASSISTANT PROFESSORS James Dickerson, Dennis Duggan, Daniel F. Gochberg,

M. Shane Hutson, Will E. Johns, Robert Knop, Keivan G. Stassun, Julia Velkovska

1 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, mole-

cules, and photons near surfaces; the electric and magnetic properties of living systems; the structure and dynamics of biopolymers; unusual stars, young stars; equations of state in brown and white dwarfs; and cosmology. Most 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 and field trips to scientific laboratories at other institutions.

Majors in the Department of Physics and Astronomy

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 (1) a two-semester, calculus-based introductory physics course (Physics 116a–116b, 117a–117b or 121a–121b); (2) a nineteen-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) six hours of electives in physics or astronomy. The core intermediate-level courses are: quantum physics and applications (Physics 225a–225b); thermal and statistical physics (Physics 223); intermediate mechanics (Physics 227a); and electricity and magnetism (Physics 229a).

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 250ab and Astronomy 250ab (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 prior to their taking of the course from their major adviser and, if applicable, 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.

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, and up to 3 hours (counted toward the 10) in a lecture course numbered above 250, 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

Introductory physics sequence (116a–b, 117a–b, or 121a–b)	8–10
Physics 153 or 225a	3–4
Two of Physics 221, 223, 225b, 227a, 229a, a three-hour one semester directed study course (289)	6–7
Physics 250a or 250b	<u>1</u>
Total hours	18–22

Minor in Astronomy

Two courses: Astronomy 102 or 175, and 201	6–7
Three other astronomy courses, one of which may be a three-hour directed study (ASTR 289)	9
Two semesters of ASTR 250	<u>2</u>
Total hours	17–18

Physics

Courses on Science and Society

Physics 101, 115, and 115W examine the relationship of science to society, technology, and culture, and assume no prior background in physics.

101. Practical Physics. A nonmathematical analysis of the methods, laws, and fundamental forces of physics as they apply to simple Lego mechanisms, the automobile, and the computer. The historical development of technology and its impact on society. Two lectures, and one three-hour laboratory per week. [4] (Not currently offered)

105. Conceptual Physics. Introduction to fundamental concepts that provide an integrated view of the physical world at all length scales. Selected topics from classical physics and major advances in the twentieth century, including particle, nuclear, condensed-matter physics, and cosmology. No credit towards the major. Ordinarily accompanied by 106. Credit not given for both 105 and 110a or 110b. FALL, SPRING. [3] Pantelides.

106. Conceptual Physics Lab. Laboratory to accompany 105. Corequisite: 105. One three-hour laboratory per week. [1] Staff.

115, 115W. Freshman Seminar. SPRING. [3] Hamilton.

Introductory Courses

Introductory physics is offered at three levels, each with the appropriate laboratory. Only one can be taken for credit. Successful completion of the first semester of a sequence is prerequisite for the second semester.

1. *Physics 110a–110b, 111a–111b.* Intended for students without strong backgrounds in mathematics or science who have a general interest in the subject. Treats physics from a conceptual point of view, with some historical and philosophical features. Not recommended as preparation for further study in a natural science. Does not count toward the major or minor.

2. *Physics 116a–116b and 117a–117b.* These two sequences of calculus-based courses are equivalent. In 116a–116b engineering examples will be used to illustrate the principles. The 117a–117b sequence is designed primarily for premedical and pre dental students. These two sequences can be interchanged if scheduling conflicts occur.

3. *Physics 121a–121b.* Designed for physics and astronomy majors and for science, engineering, and mathematics majors who intend to pursue research-oriented careers. Prospective majors should begin the sequence in the fall semester of their freshman year. It differs from 117a–117b in the selection of topics and emphasis, but is taught at about the same level; it assumes concurrent study of calculus.

110a–110b. Introductory Physics. Primarily intended for those who do not expect to major in science. Motion, forces, conservation laws, light, electricity, quantum theory, radioactivity, the atomic nucleus, and atomic energy, accompanied by a consideration of the growth, structure, and methods of physics. Ordinarily accompanied by 111a–111b. Credit not given for both 110a or 110b and 105. [3–3] Shriver, Staff.

111a–111b. Introductory Physics Laboratory. Laboratory to accompany 110a–110b. Corequisite: 110a–110b. One three-hour laboratory per week. [1–1] Staff.

116a–116b. General Physics. Designed primarily for engineering students with engineering examples. The topics include mechanics, heat, sound, electricity and magnetism, optics, and modern physics. Accompanied by a one three-hour laboratory per week. Corequisite: introductory calculus. [4–4] Johns, Csorna, Umar, Ramayya, Staff.

117a–117b. General Physics. Introduction to general physics and its applications. Mechanics, heat, sound, electricity and magnetism, optics, and modern physics. Accompanied by one three-hour laboratory per week. Corequisite: introductory calculus. [4–4] Ernst, Hutson, Velkovska, Haglund, Brau.

121a–121b. Principles of Physics. Designed for first-year students who plan to major in the department or in related disciplines. Dynamics, thermodynamics, electromagnetism, wave motion, optics, atomic and nuclear physics. Corequisite: Mathematics 150a–150b or higher numbered calculus course. Three lectures and a one-hour discussion period on modern topics of interest. One three-hour laboratory per week. [5–5] Dickerson, Greene.

137. Topics in Modern Physics. Topics vary and may include biological physics, cosmology, nanophysics, nuclear physics, particle physics, relativity. Enrollment limited to first-year students with advanced placement physics test scores of 4 or 5 (or the equivalent) and the permission of the director of undergraduate studies. FALL. [3] Tolk, Scherrer, Johns.

153. Contemporary Physics. Application of quantum physics and special relativity to case studies in current research in atomic, molecular, condensed-matter and subatomic physics; symmetries and conservation laws. Prerequisite: one year each of introductory physics and calculus. [3] (Not currently offered)

Undergraduate Core Curriculum Courses

The intermediate-level courses cover the major subdisciplines of classical and modern physics. They have as prerequisites any of the one-year introductory calculus-based physics sequences and one year of calculus.

221. Classical and Modern Optics. Geometrical optics: reflection, refraction, ray tracing, aberrations, interference. Physical optics: wave theory, absorption, dispersion, diffraction, polarization. Properties of light from lasers and synchrotron sources; photodetectors; optical technology. SPRING. [3] Dickerson.

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. FALL. [3] Tolk.

225a–225b. Introduction to Quantum Physics and Applications. A survey of modern physics and applications based on elementary quantum mechanics. 225a: Atomic and molecular structure, interaction of light with atoms and molecules, spectroscopy. 225b: Condensed-matter physics, biophysics, special theory of relativity, nuclear and particle physics. One three-hour laboratory per week. Recommended: Mathematics 198. [4–4] Hertel, Staff.

227a–227b. Intermediate Classical Mechanics. Vector algebra and coordinate transformations; orbital and rotational angular momentum; gravitational and Coulomb central-force problems; free, forced, damped and nonlinear harmonic oscillations; chaos in simple mechanical systems, normal modes; rigid-body motion; special relativity. Prerequisite: Mathematics 170a–b or equivalent. [3–3] Maguire, Csorna.

229a–229b. Electricity, Magnetism, and Electrodynamics. 229a: Electrostatic fields and potentials; Gauss's law; electrical properties of insulators, semiconductors and metals; the Lorenz force; magnetic fields and forces; electro-magnetic induction, Maxwell's equations and electromagnetic waves. 229b: Electromagnetic waves in dielectrics and conductors; electromagnetic radiation in waveguide structures; relativistic electrodynamics; magnetism as a relativistic phenomenon. Prerequisite for 229a: three semesters of calculus; corequisite for 229b: differential equations. SPRING, FALL. [3–3] Tolk, Kephart.

231. Experimental Methods. Experimental methodology and design, probability and statistics, error analysis, reporting of results. SPRING. [1] Maguire.

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 Affinities*. Readings in English, with option of German readings for German Studies majors. Focal points: empirical investigation, philosophical interrogation, and scientific explanation. Prerequisite: completion of Basic Science requirement. [3] Haglund, McCarthy. (Not currently offered)

239a–239b. Advanced Physics Laboratory. Laboratory work in more advanced techniques or design and construction of new physics teaching or research experiments. Prerequisite: 225a–225b. [Variable credit: 1–3 each semester, variable total credit 3–6] (Not currently offered)

A&S

Advanced Undergraduate Courses

These courses are intended for physics or physics-astronomy majors in their senior year and provide material supporting independent study or honors projects in physics. General prerequisite or corequisite: 225a–225b, 227a, 229a–229b, and Mathematics 175. Graduate students and undergraduates not in the honors program may enroll with consent of the instructor.

240a–240b. Selected Topics. [3–3]

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: 153 or 225a and one year of calculus. FALL. [3] Staff.

245. Computational Physics. Programming techniques in physics suitable for personal computers: classical scattering, one-dimensional barrier tunneling, Laplace's equation, static and time-dependent Schrödinger's equation, hydrodynamics, and diffusion. Recommended: Computer Science 120. SPRING. [3] Umar.

250a–250b. Undergraduate Colloquium. Seminar presentations and discussion with attention to research topics of current interest. FALL, SPRING. [1–1] Staff.

251a–251b. Introductory Quantum Mechanics. 251a: Wave-particle duality, indeterminacy, superposition, the Schrödinger equation, angular momentum, the hydrogen atom, and time-independent perturbation theory. 251b: Spin and indistinguishability, time-dependent perturbation theory, matrix theory, scattering, applications to atomic physics, condensed matter physics, and astrophysics. Prerequisite: 225a and 227a. Recommended: differential equations. FALL, SPRING. [3] Greene, Hertel.

254. Physics of Condensed Matter. Crystal structure and diffraction; phonons and lattice vibrations; free-electron theory of metals; elementary band theory of solids; semiconduc-

tors; optical properties of insulators; and applications to solid-state devices, magnetism, and superconductivity. Prerequisite: 223, 225a, and 227. [3] (Not currently offered)

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: 251. [3] (Not currently offered)

274. Principles and Applications of BioMicroElectroMechanical Systems. Principles, design, fabrication, and application of micro- and nano-devices to instrument and control biological molecules, living cells, and small organisms. Development of microfabricated systems, lab-on-a-chip, and micro- and nano-biosensors. Topical discussions from the research literature. FALL. [3] Staff.

289a–289b. Directed Study. Individual research or readings under close faculty supervision. Duplication of regular course work is to be avoided. No more than a total of 6 hours in 289 and 291 may count toward fulfilling the requirements for a physics major. FALL, SPRING, SUMMER. [Variable credit: 1–5 each semester]

291a–291b. Independent Study. Introduction to independent research and scholarly investigation initiated by the student and supervised by faculty. No more than a total of 6 hours in 289 and 291 may be offered for credit toward the major. FALL, SPRING, SUMMER. [Variable credit: 1–6, not to exceed a total of 10]

296a–296b. Senior Thesis. Independent experimental and/or theoretical investigations of basic problems under faculty supervision, culminating in a written thesis submitted to the faculty. Required for Honors in Physics. Open to selected majors judged by the department to be capable of independent investigations. FALL, SPRING, SUMMER. [Variable credit: 1–6, not to exceed a total of 10]

Medical and Health Physics Courses

224. Physical Analysis of Biological Systems. Applications of physics to human biology, including biomechanics, exponential growth and decay, statistical mechanics and mass transport, bioelectricity and biomagnetism. Prerequisite: one year of calculus. Course in biology recommended. [3] Staff.

228. Physics of Medical Imaging. Applications of physics to medicine, including signal analysis, image processing, atoms and light, x-rays, nuclear medicine, and magnetic resonance imaging. Prerequisite: one year of calculus. [3]

248. Radiation Biophysics. Response of mammalian cells and systems to ionizing radiation. Acute radiation syndromes, carcinogenesis, genetic effects, and radiobiological basis of radiotherapy. Prerequisite: 224 and Biological Sciences 110a, 111a. FALL. [2] Staff.

262. Medical Imaging, Lasers and Energy-Tissue Interactions. Survey of medical technologies, including x-ray, ultrasound, C-T scan, MRI, radiation therapy, and laser medicine and surgery. Each technology will be presented in terms of the fundamental physics and scientific discovery, research and development, and the application to medical care. The historical, sociological, economic, and ethical impacts of the medical technology will be addressed. Prerequisite: one year of calculus-based physics and Biological Sciences 110a–110b, 111a–111b. [3]

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. SPRING. [4] Stabin.

Graduate Courses

300a. Seminar. [1]

301a. Medical Physics Seminar. Radiotherapy treatment techniques and current methodologies in clinical therapy physics. Prerequisite: 224. [1] Staff.

301b. Medical Physics Seminar. Topics in medical imaging, techniques, and applications. Prerequisite: 226a. [1] Staff.

303. Experimental Nuclear Physics. [3]

304. Radiation Interactions and Dosimetry. [3]

305. Particle and Continuum Mechanics. [3]

306. Biomolecular Physics. [3]

311. Clinical Therapy Physics I. [3]

312. Clinical Therapy Physics II. [2]

313. Clinical Diagnostic Physics. [3]

314. Laboratory in Clinical Therapy Physics. [2]

315. Laboratory in Clinical Diagnostics Physics. [2]

329a–329b. Advanced Electrodynamics. [3–3]

330a–330b. Quantum Mechanics. [3–3]

333a–333b–333c–333d. Theoretical Physics Seminar. [1–1–1–1]

341. Statistical Mechanics. [3]

350. Selected Topics in Theoretical Physics. [3]

352a–352b–352c–352d. Special Topics in Experimental Physics. [Variable credit: 1–3]

354a–354b. Condensed Matter Theory. [3–3]

356. Biophysical Electrodynamics. FALL. [3] Wikswo.

357b. Atomic and Molecular Physics. [3]

358a–358b. Interaction of Light with Matter. [3–3]

359a–359b. Surface Structure and Dynamics. [3–3]

360b. General Relativity and Cosmology. [3]

365. Many-Particle Quantum Theory. [3]

370a–370b. Quantum Field Theory. [3–3]

391a. Medical Physics Practicum: Therapy. [6]

391b. Medical Physics Practicum: Diagnostic. [6]

Political Science

CHAIR C. Neal Tate

DIRECTOR OF UNDERGRADUATE STUDIES James Lee Ray

DIRECTOR OF GRADUATE STUDIES Bruce I. Oppenheimer

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William C. Havard Jr., Harry Howe Ransom, Derek J. Waller, Benjamin Walter

PROFESSORS William James Booth, John G. Geer, George J. Graham Jr.,

M. Donald Hancock, Bruce I. Oppenheimer, James Lee Ray, Mitchell A. Seligson,

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ADJUNCT PROFESSOR John Vile

ASSOCIATE PROFESSORS Marc J. Hetherington, Stefanie A. Lindquist, Richard A. Pride

ASSISTANT PROFESSORS Brooke A. Ackerly, Suzanne Globetti

SENIOR LECTURER Brandon Valeriano

LECTURER Karen K. Petersen

1 THE Political Science Department 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 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 public policy, and ethical questions about politics.

Political science majors may participate in independent study, selected topics seminars, freshman 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.

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	3
Political Theory	(201, 202, 203, 204, 205, 206, 207, 208, 209, 253)	3
Comparative Politics	(210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 231, 232, 233, 234)	3
International Politics	(220, 221, 222, 223, 224, 225, 226, 227, 228, 235)	3
American Government and Politics	(240, 241, 242, 243, 244, 245, 246, 247, 248, 251, 253, 255, 261, 262)	3

Electives (Any 200-level course listed above; 270, 287, 288;
up to 6 hours of 100-level courses, including 115W;
up to 6 hours of 280b, 280c, 289a, 289b, 290a, 290b,
299a, 299b combined)

15
Minimum hours: 30

In meeting the above requirements, students desiring African American emphasis in a program of concentration should consider courses in the following group: 219, 240, 251, 255, and 261. 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.

Honors Program

To enter the program, students must have completed all but 6 hours of the CPLE requirements, and have a minimum GPA of 3.4. 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 undergraduate studies.

In addition to requirements set by the College, the following requirements must be met:

1. 36 hours in Political Science, including the requirements for the 30 hour major.
2. 3.5 grade point average in Political Science, and a 3.5 grade point average in courses that count toward honors in Political Science.
3. Any two political science seminars, either 200 or 300 level, during the junior and senior year, or PSCI 290a–290b, Directed Readings.
4. Completion of an honors thesis, under the direction of a faculty adviser. Students will enroll for Senior Honors Research during the semester(s) they work on the honors thesis. The thesis may consist of an extension of and elaboration on one paper, or an integration and extension of both papers written for the seminars. It may also build on work completed for the Directed Readings courses.
5. An oral examination on the honors thesis in the last semester of the senior year.

A three-member Honors Committee will be appointed to administer each student's program. Students should submit the name of a faculty adviser and the proposed Honors program by the second semester of their junior year. The committee will decide whether to approve the Honors program proposal, and administer the oral examination. *Successful candidates are awarded Honors or High Honors in their field, and this designation appears 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:

<i>Political Theory</i>	
103	3
Any five of the following:	
201, 202, 203, 204, 205, 206, 207, 208, 209, 247, 248, 253	15
<i>World Politics</i>	
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, 212, 213, 214, 215, 216, 217, 218, 219, 231, 232, 233, 234, Fisk Political Science 406	
International Politics: 220, 221, 222, 224, 225, 226, 227, 228, 235	15
<i>American Politics</i>	
100 or 150	3
Any five of the following: 204, 222, 223, 240, 241, 242, 243, 244, 245, 246, 247, 248, 251, 253, 255, 261, 262	
	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.

One of the starred courses 100, 101, 102, 103, or 150 is prerequisite for all other political science courses.

- ★**100. Introduction to American Government and Politics.** A descriptive survey of the constitutional and structural principles, processes, and functions of the American governmental system. FALL, SPRING. [3] Staff.
- ★**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. FALL, SPRING. [3] Staff.
- ★**102. Introduction to International Politics.** Significant patterns and trends in twentieth-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. FALL, SPRING. [3] Staff.
- ★**103. Introduction to Political Theory.** Moral concepts central to political life: equality, freedom, community, individualism. The ideologies that express them: democracy, liberalism, socialism. Focus on contemporary issues drawing on classical sources. FALL, SPRING. [3] Staff.

115, 115W. Freshman Seminar. [3]

★**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. FALL (during presidential election years). [3] Geer, Oppenheimer.

201. Contemporary Political Theory. Recent political philosophy. Democratic theory, multiculturalism, feminism, post-modernism. SPRING. [3] Ackerly.

202. History of Classical Political Philosophy. Intensive analysis of the principal political philosophers in the classical tradition. FALL. [3] Graham.

203. Modern Political Philosophy. Intensive analysis of the principal political philosophers in the modern tradition. SPRING. [3] Graham.

204. American Political Thought. An analytical study of American political theories and their impact upon our political institutions. [3] (Not currently offered)

205. Modern Political Ideologies. Analysis of the belief systems of selected political movements, groups, and societies; their relationship to political philosophy; and theories of political action. [3] (Not currently offered)

206. Foundations of Marxism. Intensive analysis of the political, philosophical, and economic theories of Karl Marx in the context of European philosophical and political traditions. Major critical interpretations of Marx will be stressed. FALL. [3] Graham.

207. Liberalism and Its Critics. Philosophical and political analysis of the utilitarianism of Mill and Bentham and the liberalism of Locke and Kant. Critiques by contemporary Libertarians and Communitarians. [3] (Not currently offered)

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. [3] (Not currently offered)

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, 205, or 206. FALL, SPRING. [3] Ackerly.

210. West European Politics. Analysis of political development, social forces, institutions, and public policy in Great Britain, France, West Germany, Italy, and Sweden. SPRING. [3] Hancock.

211. The European Union. Political and economic integration. Origins, institutions, decision processes, policies, achievements, and prospects of the European integration movement. SPRING. [3] Hancock.

212. Politics in Russia and Successor States. Government, politics, and system performance in the Soviet Union and contemporary Russia, with some reference to other East European countries. [3] (Not currently offered)

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. [3] Seligson.

214. The Japanese Political System. Study of the government and politics of Japan, in the context of the interaction of traditional and modern elements in contemporary Japanese political style. [3] (Not currently offered)

215. Change in Developing Countries. Comparative study of political and economic change in developing countries. Political implications of ethnicity, economic dependency, and environmental degradation. [3] (Not currently offered)

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. [3] (Not currently offered)

217. Latin American Politics. Cross-national analysis of political institutions, cultures, and processes of change in Latin America. FALL. [3] Staff.

218. Social Reform and Revolution. Reform and revolution as responses to social inequality. Causes and outcomes of reform and revolution in Europe and Latin America from the mid-nineteenth century to the present. [3] Seligson.

219. African Politics. Domestic politics and foreign relations of African states in comparative perspective. How African history has been studied and the tools political scientists have developed to study Africa. Colonialism, the colonial legacy, independence movements on the continent, contemporary issues and problems in selected countries (e.g., Ivory Coast, Kenya, Tanzania). [3] (Not currently offered)

220. Crisis Diplomacy. Foreign policy decision making and strategy. Emphasis on differences between crises that lead to war and those that do not. Foreign relations of Britain, France, Germany, Russia, and Japan. FALL, SPRING. [3] Staff.

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. FALL, SPRING. [3] Tucker, Valeriano.

222. American Foreign Policy. Critical analysis of major international and domestic factors shaping U.S. foreign relations as reflected in selected twentieth-century experiences. SPRING. [3] Ray.

224. Theories of World Politics. Analysis of major theories of the basic factors underlying global relations. FALL. [3] Ray.

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. SPRING. [3] Alexander.

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. SPRING. [3] Staff.

227. Economics and Foreign Policy. Economic factors influencing foreign policy behavior, including economic actors, conditions, and motivations for conflictual and cooperative relations. Economic instruments used by governments to achieve policy goals: trade ties, economic sanctions, foreign aid. Economic theories of war and peace. SPRING. [3] Staff.

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. SPRING. [3] Staff.

231. Contemporary Issues in Europe. Detailed analysis of the political, economic, and social issues facing Europe's post-Cold War period including regional integration, transitions to democracy, economic transformation, ethnic-national relations, industrial organization, environmental politics. FALL. [3] Hancock.

232. Evolution in French Foreign Policy Under the Fifth Republic. Development of distinct French foreign policy; use of colonial experience in the North-South dialogue; France's place in the new international order. Offered only in Vanderbilt in France. [3] (Not currently offered)

233. Social Movements in the Developed and Developing Worlds. Comparative study of protest movements with emphasis on origins, activities, and impact of movements focusing on women, ethnic minorities, and the environment. SPRING. [3] Staff.

234. Women, Politics, and the Development of the Third World. Analysis of the special problems afflicting women in the developing world and examination of proposed strategies, domestic and international, for reform. FALL. [3] Staff.

235. Foreign Policy in Russia and Successor States. Evolution of foreign policy after the Cold War, with special emphasis on the impact of political and economic transition. Origins and development of "new thinking" on national security, recasting defense policy, integration in the global market and cooperation with international organizations, rethinking of relations with the U.S. and Western Europe, redefinition of relations among former Soviet republics. [3] (Not currently offered)

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. FALL. [3] Seligson.

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. FALL, SPRING. [3] Oppenheimer, Hetherington.

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. FALL. [3] Staff.

242. Political Communication. The relationship of government and the press. Theories of communication; mass media and sociopolitical change; political persuasion and propaganda; responsibilities of the press. SPRING. [3] Pride.

243. Political Campaigns and the Electoral Process. Theories of representation and democratic accountability; electoral strategies and tactics, including political polling and analysis. FALL, SPRING. [3] Pride, Staff.

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. SPRING. [3] Oppenheimer.

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. FALL. [3] Geer.

246. Religion and Politics in the United States. The historical and contemporary impact of religion on the political culture, coalitions, and behavior in the United States. The vitality of religion in American society and its political consequences. The evolution of church-state relationships. [3] (Not currently offered)

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. SPRING. [3] Pride.

248. Intentional Communities. The utopian impulse in fact and fiction; formation of polities such as communes, cults, and eco-villages; alternative subcultures within the United States with special emphasis on the 1960s and 1990s. FALL. [3] Pride.

251. Regulations and Subsidies. Theoretical and empirical analyses of government activity. Governmental decisions affecting prices; pollution and other externalities; consumer protection; social insurance and agricultural subsidies. Political processes and policy outcomes. [3] (Not currently offered)

253. Ethics and Public Policy. Ethical argument in the public policy process; major approaches to ethics applied to specific issues of public policy. [3] (Not currently offered)

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 taken more than once only if there is no overlap with a prior offering. FALL. [3] Swain.

261. Constitutional Interpretation. The nature and sources of constitutional law; judicial development of principles of distribution and scope of governmental powers; constitutional limitations and personal rights. Case method. [3] Vile.

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: 261 recommended but not required. [3] Lindquist, Tate.

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. SPRING. [3] Staff.

280a–280b–280c. Internship. 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.

280a. Internship Training. May be taken on a Pass/Fail basis only and must be taken concurrently with 280b. These hours may not be included in the minimum hours required in the Political Science major. FALL, SPRING. [Variable credit: 1–9]

280b. Internship Research. FALL, SPRING. [Variable credit: 1–3]

280c. Internship Readings. FALL, SPRING. [Variable credit: 1–3]

283. Seminars in Selected Topics in American Government. Topics of special interest, as announced in the *Schedule of Courses*. 283 may be repeated for credit once if there is no duplication of topic. FALL, SPRING. [3] Staff.

284. Seminars in Selected Topics in Comparative Politics. Topics of special interest, as announced in the *Schedule of Courses*. 284 may be repeated for credit once if there is no duplication of topic. FALL, SPRING. [3] Staff.

285. Seminars in Selected Topics in International Politics. Topics of special interest as announced in the *Schedule of Courses*. 285 may be repeated for credit once if there is no duplication of topic. FALL, SPRING. [3] Staff.

286. Seminars in Selected Topics in Political Theory. Topics of special interest as announced in the *Schedule of Courses*. 286 may be repeated for credit once if there is no duplication of topic. FALL, SPRING. [3] Staff.

287–288. Seminars in Selected Topics. Topics of special interest, as announced in the *Schedule of Courses*. Either or both 287–288 may be repeated for credit once if there is no duplication of topic. [3–3] Staff.

289a–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. FALL, SPRING. [Variable credit: 1–3, not to exceed a total of 6 in 289a–289b, 290a–290b combined.] Staff.

290a–290b. 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 political science. FALL, SPRING. [3–3, not to exceed a total of 6 in 289a–289b, 290a–290b combined.] Staff.

299a–299b. Senior Honors Research. Open only to seniors in the departmental honors program. FALL, SPRING. [3–3]

300. Political Theory. [3] Ackerly, Booth, Graham.

302. Democratic Theory. [3] Graham.

303. Philosophy of Science for Social Science. [3] Graham.

305. Feminist Social and Political Thought. [3] Ackerly.

306. Problems of Interpretation in Political Theory. [3] Staff.

308. Studies in Historical Political Thought. FALL. [3] Ackerly.

309. Research in Political Theory. [3]

310. Studies in Comparative Analysis. [3] Staff.

311. Regional and International Dimensions of European Integration. [3] Hancock.

312. Comparative European Politics. [3] Hancock.

313. Politics in Russian and Successor States. [3] (Not currently offered)

315. Research in Latin American Politics. [3] Seligson, Staff.

316. Politics of Change in the Third World. SPRING. [3] Seligson.

318. Quantitative Methods and Small-N Analysis. [3]

319. Research in Comparative Analysis. [3]

320. International Politics. [3] Ray.

321. International Conflict: Theories and Methods. [3] Staff.

322. Peace Research. [3] Staff.

323. Current Theory and Research in World Politics. [3] Staff.

325. International Political Economy. [3] Staff.

326. The Political Economy of War and Peace. [3] Staff.

329. Research in International Politics. [3]

- 330. Studies in American Politics.** SPRING. [3] Oppenheimer.
- 331. Party Politics.** [3] Hetherington.
- 332. Political Parties and Electoral Behavior.** [3] Staff.
- 333. Political Culture, Opinion, and Behavior.** [3] Pride.
- 335. Politics of American Legislation.** [3] Oppenheimer.
- 336. The Judicial Process.** [3] Lindquist, Tate.
- 339. Research in American Politics.** [3]
- 355. Research Design.** FALL. [3] Tate.
- 356. Statistics for Political Research I.** SPRING. [3] Globetti.
- 357. Statistics for Political Research II.** [3] Staff.
- 358. Topics in Political Methodology.** [3] Staff.
- 359. Introduction to Formal Theory and Modeling.** [3] (Not currently offered)
- 360. Topics in Formal Theory and Modeling.** [3] (Not currently offered)
- 370. Topics in Political Science.** [3] Staff.
- 390a–390b. Independent Study.** FALL, SPRING. [Variable credit: 1–3 each semester]
- 398. Dissertation Seminar.** SPRING. [3]

Psychology

ACTING CHAIR Randolph Blake

DIRECTOR OF UNDERGRADUATE STUDIES Joseph S. Lappin

DIRECTOR OF GRADUATE STUDIES Andrew J. Tomarken

DIRECTOR OF CLINICAL TRAINING Jo-Anne Bachorowski

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Oakley S. Ray, Hans H. Strupp, Leland E. Thune, Warren W. Webb

PROFESSORS Randolph Blake, Vivien A. Casagrande, Ford F. Ebner, Robert Fox,

Jeffery J. Franks, Steven D. Hollon, Jon H. Kaas, Joseph S. Lappin,

Gordon D. Logan, Timothy P. McNamara, Richard D. Odom, Jeffrey D. Schall,

William P. Smith

ASSOCIATE PROFESSORS Jo-Anne Bachorowski, Isabel Gauthier, Thomas J. Palmeri,

Sohee Park, Anna Roe, David G. Schlundt, Andrew J. Tomarken

ASSISTANT PROFESSORS Denise Davis, René Marois, Andrew Rossi, Adrienne Seiffert,

Frank Tong, David Zald

RESEARCH ASSISTANT PROFESSORS Merida Grant, Hans Peter Melzer,

James D. Stefansic, Iwona Stepniewska, Susanne Sterbing

SENIOR LECTURERS Leslie D. Kirby, Leslie M. Smith, N. Jane Zbrodoff

1 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, a Research Concentration for students who plan graduate study in psychology or related disciplines, and a Research with 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	Research Concentration	Research with Honors
PSY 101 or 115	PSY 101 or 115	PSY 101 or 115
PSY 208	PSY 208	PSY 208
PSY 209	PSY 209	PSY 209
3 Distribution Courses*	3 Distribution Courses*	3 Distribution Courses*
4 Psychology Electives	2 Research Skills & Tools** 3 Concentration Courses*** 1 Psychology Elective	2 Concentration Courses*** PSY 295a-b and PSY 296 a-b
Total hours 30	Total hours 36	Total hours 36

The **General Program** is designed for students who desire a broad background in contemporary psychology but do not plan graduate research training in psychology or related disciplines.

The **Research Concentration** program is designed to offer additional background for students whose career plans involve continued research in psychology or a related discipline. This program differs from the General Program by requiring additional (a) Research Skills & Tools courses relevant to psychological research and (b) Concentration Courses relevant to research in a specialized area of psychology. Both the Research Skills & Tools and Concentration Courses categories include many courses offered by other departments, reflecting the interdisciplinary nature of contemporary psychology. Many different course options might be selected for a specific area of research concentration, depending on the student's career

plans. Students should meet with their major adviser (or honors supervisor) prior to selecting courses in the Research Skills & Tools and Concentration Courses categories.

Research skills and experience are highly valued for admission to graduate training programs in psychology and other areas, and are relevant to the needs for creativity that arise in many professions. Students in both the General Program and the Research Concentration are strongly encouraged to obtain research skills and experience through Directed Study, in a summer internship, or as an undergraduate research assistant. Students should meet with their major adviser for advice on seeking research experience.

The **Research with Honors** program requires four semesters of honors research, participation in the Honors Seminar (PSY 295 and 296), an honors thesis, and two Concentration Courses. (The Research with Honors program is similar to the Research Concentration, but substitutes the honors project for the two Research Skills & Tools courses and one course in the Concentration Courses component.) Students in the Research with Honors program must assure that their two Concentration Courses are consistent with the theme of their honors research, so the courses must be selected with the advice and consent of the faculty mentor for the honors project. Open only to Honors candidates.

The Research with Honors program offers unusual opportunities for interested students, including special seminars and individual research projects in collaboration with faculty members. Honors projects involve four semesters of research and participation in the Honors Seminars, PSY 295a–b and 296a–b. Under special circumstances (e.g., a semester abroad or student teaching), students may sometimes enroll in only three semesters of the Honors Seminars—provided that they can complete the four-semester research project by extra work during three regular semesters and/or a summer, and provided that this arrangement is acceptable to the faculty mentor and to the director of the Honors Program. Majors in psychology are eligible to apply for the Honors program at the end of their sophomore year if they have a grade point average of at least 3.20 in all courses and in psychology courses. Students who complete the program successfully and who have a final grade point average of at least 3.20 will receive Honors or High Honors in Psychology. The program should substantially aid those intending to do graduate work.

* *Distribution Courses* (at least 3 of the following 5 courses are required)

The following courses provide a grounding in core content areas of experimental psychology.

PSY 215, 225, 201, 231, GPSY 1630

** *Research Skills & Tools* (at least 2 of the following courses are required for the Research Concentration)

The following courses aim to develop laboratory, analytical, and quantitative skills and tools relevant to specific areas of research in contemporary

psychology. Students planning to attend graduate school in psychology or a related discipline are strongly encouraged to obtain additional laboratory experience through Directed Study, a summer internship, or an undergraduate research assistantship.

PSY 234, 253, 254, 290 (3 credit hours only),

BME 258, 260, 271, BME / EECE 263, CS 101 or 150, 201, 274, EECE 112, 116, 218,

GPSY 2102, 2520, 2530, MATH 170a,b, 175, 204, 208, 218 PHYS 228

*** *Concentration Course Areas* (3 courses required for the Research Concentration program and 2 courses for the Research with Honors program)

Concentration Courses provide advanced training in a contemporary interdisciplinary area of experimental psychology. Each Concentration Area requires one or two specified Distribution Courses plus three advanced Concentration Courses. (For students in the Research with Honors program, the Honors Seminar, PSY 295a, counts as one of the three Concentration Courses.) Possible Concentration Areas are listed below. Other specialized Concentration Areas may be formulated with approval of the student's major adviser or honors mentor and the director of undergraduate studies. The Concentration Courses must include at least one course from the Department of Psychology. Students should consult with their major adviser or honors mentor in selecting specific Concentration Courses. Note that many Special Topics (280–289) and Independent Study (293) courses can be included within the Concentration Courses. Relevant Concentration Courses may be in other academic programs or other Schools or Colleges of the University. (Arts and Science students are reminded that a bachelor's degree requires at least 102 hours of course work within the College. Students with an approved second major outside the College must complete at least 90 hours of course work within the College.)

Possible Concentration Areas:

Cognitive Development

Cognitive Neuroscience

Cognitive Science

Comparative and Systems Neuroscience

Psychopathology and Clinical Neuroscience

Social and Cultural Influences

Vision

Relevant Concentration Courses for Specific Areas of Research Concentration

Each set of Concentration Courses must include at least one course offered by the Department of Psychology.

Cognitive Development (required Distribution courses: PSY 225 and GPSY 1630)

PSY 222, 226, 232, 252, 276, 282, 283, GPSY 1500, 1600, 1750, 2000, 2250, 2310, 2320

Cognitive Neuroscience (required Distribution courses: PSY 225 and PSY 201)

PSY 214, 216, 222, 226, 232, 240, 242, 269, 272, 274, 276, 277, 280, 282, 285, NSC 255, PHIL 256

Cognitive Science (required Distribution course: PSY 225)

PSY 214, 216, 222, 226, 232, 240, 242, 251, 276, 277, 278, 280, 282, ANTH 201, 203, CS 260, GPSY 2000, PHIL 202, 246, 256, SOC 202

Comparative and Systems Neuroscience (required Distribution course: PSY 201)

PSY 216, 258, 269, 272, 274, 285, BSCI 205, 210, 239, 254, 256 NSC 255

Psychopathology and Clinical Neuroscience (required Distribution course: PSY 215)

PSY 211, 232, 235, 240, 244, 245, 246, 247, 252, 261, 267, 268, 275, 277, 288, GPSY 1700, NSC 255, PSCI 279, SOC 231, 232, 233, 264, 267

Social and Cultural Influences (required Distribution course: PSY 231)

PSY 217, 245, 266, 276, 282, 289, GPSY 1700, 1750, ANTH 237, SOC 226, 247, 250, 254, 260, 264, 267, SOC / ANTH 265

Vision (required Distribution course: PSY 201 or PSY 225)

PSY 214, 216, 232, 236, 272, 274, 277, 280, BSCI 254, 256, CS/EECE 253, EECE 254

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 or 115	3
Psychology 208 and 209	6
Two courses from the list of Distribution Courses specified for the major	6
One additional course at the 200 level	<u>3</u>

Total hours: 18

Students may elect undergraduate seminars (Psychology 280–289 or 297) as the additional course at the 200 level, but not Directed or Independent Study (Psychology 290, 291, 292, and 293)

Starred course 101 (or 115) is prerequisite for all other psychology courses except 115a. Although 101 and 115 cover the same material and either contributes to satisfaction of the College Program requirement in Social Sciences, neither can be taken to replace a grade earned in the other. Course 115a is a special topics seminar that does not contribute to satisfaction of the requirement in Social Sciences or serve as prerequisite for other psychology courses.

★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 both 101 and 115. FALL, SPRING. [3] Gauthier, Bachorowski.

★115, 115a, 115W. Freshman Seminar. No credit for both 101 and 115. [3]

201. Neuroscience. A comprehensive introduction to the field of neuroscience from important molecules to cell function to neural systems to cognition. Topics include the physiology of nerve cells, the sensory systems of vision, audition and touch, the motor system, sleep, consciousness, speech and sexual behavior. Coverage of clinical topics includes the chemical basis of the psychoses, diseases of the brain, and repair mechanisms after brain injury. FALL, SPRING. [3] L. Smith, Marois.

208. Principles of Experimental Design. An introduction to theory and research methods in psychological science. Topics include philosophy of science, ethical issues, experimental design, and data interpretation. Not open to students who have received credit for Psychology 213. FALL, SPRING. [3] Palmeri, Seiffert.

209. Quantitative Methods. Introductory survey of principles and methods for the statistical analysis of experiments, with emphasis on applications in psychology. Major topics are descriptive and inferential statistics. Prerequisite: 208. FALL, SPRING. [3] Franks.

211. Personality. Introduction to the study of personality. Major theories of personality development, methods of assessment, and results of research. The study of normal behavior is emphasized. SPRING. [3] Kirby.

214. Perception. Current theory and research in sensation and perception, including an analysis of philosophical and biological issues. Understanding how biological organisms acquire, process, and use information about objects and events in the environment. Vision, audition, taste, smell, and touch. SPRING. [3] Fox.

215. Abnormal Psychology. Introduction to the study of deviant behavior. Topics include definitions of adequate human functioning, processes that disrupt functioning, and methods of evaluation and treatment. No credit for students who have taken 115a Section 2 (Abnormal Psychology). FALL. [3] Hollon.

216. Movement. Psychological, computational, and neural perspectives on the activities of looking, reaching, grasping, speaking, smiling or frowning, walking and running. FALL. [3] Schall.

217. Psychology of Women. Feminist approaches to theory, research, and practice in psychology. Women at the center of analysis. Focus on their diversity. Emphasis on inequities and the relationship between psychological understanding and social change. FALL. [3] Manning.

222. Learning and Memory. An analysis of the major theories and research results related to learning and memory. [3] (Not currently offered)

225. Cognitive Psychology. Attention, pattern recognition, knowledge representation, language, reasoning, and human intelligence. FALL, SPRING. [3] Zbrodoff.

226. Thinking and Reasoning. A survey of research findings, theories, and empirical approaches to understanding how we “think.” Deductive reasoning, decision making, categorization, problem solving, and human rationality. [3] (Not currently offered)

231. Social Psychology. The influence of social conditions upon behavior in interpersonal and group relations; perception, judgment, learning, and attitudes. FALL. [3] Kirby.

232. Mind and Brain. Introduction to cognitive neuroscience. How the brain supports cognition, perception, attention, memory. Language, thought, action and consciousness. SPRING. [3] Tong.

234. Laboratory in Behavioral Neuroscience. Experimental methods in behavioral neuroscience. Computer-based data acquisition and analysis, statistical reasoning, and manuscript preparation. Prerequisite: 201. FALL, SPRING. [4] Roe, Rossi.

235. Biological Basis of Mental Disorders. Recent discoveries of brain changes that alter mental functioning. How a malfunctioning brain can produce suicidal behavior, mood and anxiety disorders, schizophrenia, alcoholism, and sexual dysfunction. How drug abuse results in altered brain chemistry and how organic brain diseases such as epilepsy, AIDS, or stroke can cause cognitive impairment. Prerequisite: 201. SPRING. [3] L. Smith.

236. The Visual System. An interdisciplinary approach to how humans see and interpret their visual environment. Topics include the structure of the eye and brain (including optics), the physiology of individual cells and groups of cells, machine vision and models of visual function, visual attention, and mechanisms of complex visual perception. Lectures by faculty from Psychology, Engineering, and Cell and Developmental Biology. SPRING. [3] Lappin.

240. Cognition, Consciousness, and Self. Perspectives from Buddhist psychology, cognitive, physical, and biological science. SPRING. [3] Franks.

243. Feminist Approaches to Clinical Practice. The therapeutic process from a feminist perspective; power relationships; the impact of stereotypes, trauma, institutionalized sexism, social construction of gender on women's lives. [3] (Not currently offered)

244. Introduction to Clinical Psychology. Historical foundations, professional ethics, principles of clinical assessment and therapy, and areas of specialization such as health psychology. [3] (Not currently offered)

245. Emotion. Introduction to the study of emotion. Topics include defining emotion, functions of emotion, emotion and health, emotion and psychopathology, individual differences, and emotional development. Repeat credit for students who have taken 288: Emotional Processes. [3] (Not currently offered)

246. Schizophrenia. Neurological, psychological, cultural, and evolutionary perspectives. Genetics, epidemiology, symptomatology, sex differences, laterality, and affect. Prerequisite: 215. FALL. [3] Park.

247. Depression. Psychological and biological perspectives on unipolar and bipolar affective disorders. Assessment and classification, epidemiology, genetics, family environment, and treatments. Prerequisite: 215. [3] (Not currently offered)

250. Control of Human Behavior. Factors determining the behavior of human groups and individuals. Emphasis on research on the effectiveness of methods such as psychotherapy, programmed learning, brainwashing, teaching, and propaganda procedures. Attention to

applications as well as to theoretical bases of the methods. Ethical and moral issues relating to the control of human behavior. [3] (Not currently offered)

251. How the Mind Works. Seminar on theory and research in sensory memory, attention and consciousness, pattern recognition, short-term memory, episodic and semantic long-term memory, knowledge representations, reasoning, and problem-solving. No credit for students who have taken 225. [3] (Not currently offered)

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. FALL. [3] L. Smith.

253. Laboratory in Cognition. Applications of experimental methods to the study of human cognition. Attention, short-term memory, long-term memory, implicit memory, knowledge representation. Prerequisite: 208, 209, and either 222, 225, or 278. [3] (Not currently offered)

254. Laboratory in Perception. Applications of experimental methods to the study of human perception. Psychophysical techniques, signal detection theory, direct and indirect scaling, chronometric analyses. Prerequisite: 208, 209, and 214. [3] (Not currently offered)

258. Animal Behavior and Evolutionary Psychology. A comparative and phylogenetic approach to the study of behavior, with special emphasis on sensory processes, instinctive behavior, the genetics of behavior, and ethology. SPRING. [3] Kaas.

261. Drugs and Behavior. The field of psychoactive drugs is surveyed, with particular emphasis on the behavioral effects of these agents. [3] (Not currently offered)

265. Introduction to Psychological Assessment. Issues and strategies surrounding the psychological tests most commonly used in psychology, education, and business. Topics include testing of intelligence, measures of personality and psychopathology, assessment of abilities and aptitudes. [3] (Not currently offered)

266. Interpersonal and Intergroup Relations. An examination of social psychological literature related to intergroup and interpersonal conflict and its resolution, with special attention to problems of relations between black and white in contemporary society. [3] (Not currently offered)

267. The Delivery of Psychological Services. Introduction to methods of psychological assessment, intervention, professional ethics, and outcome evaluation. Lectures, reading, and class discussion are supplemented by practicum placements. Open only to psychology majors. Prerequisite: 211, 215, and consent of instructor. SPRING. [3] Davis.

268. Health Psychology. The 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. FALL. [3] Schlundt.

269. Developmental Neuroscience. Normal and abnormal brain development. Cell division, migration, cell death, synapse formation, plasticity, and clinical syndromes. Prerequisite: 201. FALL. [3] Ebner.

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. SPRING. [3] Ebner.

273. Clinical Intervention. The three main schools of psychotherapy: dynamic, behavioral, and humanistic. Comparison of theories of disorder, theories of change, and techniques of treatment. [3] (Not currently offered)

274. Neuroanatomy. Gross structure, histological architecture, and techniques for creating images of the human brain. SPRING. [3] Roe, Smith.

275. Behavioral Endocrinology. Role of hormones in behavior. Sexual differentiation and sex differences, reproductive behavior, parental behavior, homeostasis, biological rhythms, aggression, and emotion. [3] (Not currently offered)

276. Knowledge, Brain, and Culture. How conceptual knowledge is organized in the human mind, how it varies across cultures, how it is acquired by children, and how it is processed by the human brain. Integrates findings from psychology, neuroscience, and anthropology. [3] (Not currently offered)

277. Brain Damage and Cognition. Effects of neurological impairment from stroke, injury, or disease on perception, speech, memory, judgment, and behavior. Relation between brain systems and cognitive systems. [3] (Not currently offered)

278. Cognitive Science. Interaction of cognitive psychology, artificial intelligence, neuroscience, and linguistics in explaining knowledge, perception, memory, and learning. Philosophical questions that arise in trying to understand the mind. Prerequisite: 101 or 115, Philosophy 100 or Computer Science 150. [3] (Not currently offered)

Courses numbered 282–289 are seminars devoted to intensive study of special topics. Enrollment is restricted to majors, except with consent of instructor. Each seminar may be repeated once.

280. Special Topics in Perception. FALL. [3] Fox.

282. Special Topics in Cognitive Psychology. FALL, SPRING. [3] Zbrodoff.

283. Special Topics in Developmental Psychology. FALL, SPRING. [3] Odom.

285. Special Topics in Neuroscience. FALL, SPRING. [3] Rossi, Schall.

286. Special Topics in Human Competence. [3] (Not currently offered)

288. Special Topics in Clinical Psychology. [3] (Not currently offered)

289. Special Topics in Social Psychology. FALL, SPRING. [3] W. Smith.

290–291–292. 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. FALL, SPRING. [Variable credit: 1–3 each semester] Staff.

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. FALL, SPRING. [Variable credit: 1–3 each semester] Staff.

295a–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 honors candidates. [3–3]

296a–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 honors candidates. [3–3]

297. Senior Seminar. [3] (Not currently offered)

300a–300b. Research Seminar. [Variable credit: 1–4 each semester]

301a–301b. Advanced General Psychology. [3 per section]

303. Models of Human Memory. [3]

304a–304b. Quantitative Methods and Experimental Design. [3–3]

309. Factor Analysis and Structural Equation Modeling. [3]

310. Research Methods in Clinical Psychology. [3]

312. Psychological Assessment. [3]

315. Theories of Psychotherapy. [3]

323. Practicum in Psychological Assessment. [Variable credit: 1–5 each semester]

324. Practicum in Psychotherapy. [Variable credit: 1–5 each semester]

331a–331b. Advanced Investigational Techniques. [Variable credit: 1–3 each semester]

335. Special Topics in Neuroscience. [2]

342. Seminar: Social. FALL. [3] W. Smith.

343. Seminar: Perception. [3]

344. Seminar: Neuroscience. SPRING. [3] W. Smith.

351. Seminar: Cognitive Psychology. [3]

352. Seminar: Clinical Psychology. [3]

353. Professional Ethics in Clinical Psychology. [3]

354. Clinical Neuropsychology. [3]

356. Seminar: Clinical Psychopharmacology. [3]

357. Seminar in Cognitive Science. [2]

358. Seminar in Neuroscience. [2]

360. Seminar in Clinical Science. [2]

361. Interdisciplinary Seminar in Social Psychology. [1–2]

Public Policy Studies

DIRECTOR Kathryn H. Anderson

1 STUDENTS may choose an interdisciplinary program of concentration in public policy studies. The program includes courses in economics, political science, history, philosophy, sociology, and statistics. Students take elective courses focusing on public policy issues.

Program of Concentration in Public Policy Studies

An interdisciplinary program of concentration in public policy studies consists of 39 hours approved by the chair of the Committee on Public Policy Studies (see Interdisciplinary Programs of Concentration).

The program of concentration consists of two parts: 24 hours of required core courses, and 15 hours of elective courses focusing on substantive policy issues. A student contemplating a program in public policy studies should take Economics 100 and 101 and Political Science 100 or 101 as prerequisites to the core. 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 the chair.

Core Courses

Students are required to take Sociology 211 or HOD 1700; Economics 150 or Psychology and Human Development 2101, or Math 218 plus 218L, or Sociology 127; Economics 231; Sociology 204; Philosophy 239 or Political Science 253; and three courses from the following set: Economics 285, 284, 279, Philosophy 253, Political Science 255, 261, or 251, HOD 2100.

It is the intention of the committee that students put together a coherent set of courses with a policy theme for the other 15 hours of the major. To this end, several "tracks" have been suggested by way of guidance, but students are not required to choose one of them. Examples include:

Environmental Policy (5 courses from the following): Biological Sciences 238; Economics 277, 283; Earth and Environmental Sciences 106, 201; Political Science 215; Sociology 270. [Courses listed under the Environmental Studies Minor may also be included, subject to approval by the Chair.]

International Policy (5 courses from the following): East Asian Studies 240; Economics 222, 263; History 282, 283; Latin American Studies 201; Political Science 102, 212, 222, 223, 228, 235; Sociology 277.

Justice Policy (5 courses from the following): Economics 267, 285; Psychology 215, 261; Sociology 231, 232, 233, 234, 240.

Social Policy (5 courses from the following): Economics 267, 286; History 285; Philosophy 270; Political Science 233; Sociology 237, 251.

Students who find themselves interested in other policy areas, such as education, health, social security, or the military are encouraged to consult with the Chair because the availability of relevant courses will vary from year to year.

Honors Program

A student concentrating in public policy studies may apply for admission to the honors program. The admission, supervision, and evaluation of the student are subject to College regulations and will be the responsibility of both the Committee on Public Policy Studies and the Committee on the Honors Program in an appropriate participating department.

Religious Studies

CHAIR Volney P. Gay

PROFESSORS EMERITI Charles H. Hambrick, Lou Silberman

PROFESSORS Lewis V. Baldwin, Volney P. Gay, Lenn E. Goodman, Thomas A. Gregor,
Daniel M. Patte

ASSOCIATE PROFESSORS Victor Anderson, Beth Ann Conklin, William Franke

ASSISTANT PROFESSORS M. Shai Cherry, Richard McGregor, James O. Pawelski,
Martina Urban, Gay H. Welch

SENIOR LECTURER Jay Geller

1 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—their own may be one of the two. 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 freshman seminar (115) 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, 131, 201, 204, 206, 209, 211, 212, 213, 214, 215, 216, 217, either Greek 202 or Latin 102 or equivalent, History 180.
- b. Judaism: 106, 108, 112, 131, 207, 208, 222, 226, 228, 229, 259, 260, Hebrew 111b, Jewish Studies (JS) courses.
- c. Islam: 113, 117, 131, 251, 252, 254, Arabic 210b.
- d. Buddhism and East Asian Religious Traditions: 130, 132, 133, 150, 231, 244, 249, Japanese 212.
- e. African American Religious Traditions: 107, 110W, 114, 145, 205, 219, History 201.
- f. Native American Religious Traditions: Anthropology 250, 263.

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. 122, 234, 235, 236, 237, 240, Jewish Studies 233, Jewish Studies 244.
- b. Ways in Which Religion Shapes the Thoughts, Lives, and Values of Practitioners: 201, 202, 206, 208, 218, 220, 223, 230, 231, 232, 239, 241, Anthropology 226, Astronomy 203, Classical Studies 224, Philosophy 242, Philosophy 245, Sociology 246.

Category 3. *Senior Requirements*. A senior seminar (280, 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 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 freshman seminar (115) 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 (280) to be counted in Category 2.

106. The Hebrew Bible and Its Interpretations. An examination of selected Biblical texts and how they have been understood through the centuries and in modern scholarship. Use of archeological, historical, and literary approaches. SPRING. [3] Cherry.

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. SPRING. [3] Baldwin.

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] (Not currently offered)

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. FALL. [3] Patte.

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. FALL. [3] Baldwin.

112. Introduction to Judaism. The Jewish religious tradition as it developed from Biblical times to the present. Emphasis on the rabbi as authoritative interpreter of Scripture. Discussion will include alternate modes of religious authority in Judaism such as mystical experience and messianism. Offered alternately with 222. FALL. [3] Davis.

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 shii' Islam, evolution of law and theology, sufism and political philosophy. Islam in Africa, India, Spain, and southeast Asia as well as the Middle East. FALL. [3] McGregor.

114. Introduction to African American Philosophies of Religion. Contemporary African American religious thinkers. The idea of God, the problem of evil and suffering. The problem of divine revelation and religious knowledge, and the contributions of religion to problems of human identity and difference. [3] Anderson (Divinity School). (Not currently offered)

115, 115W. Freshman Seminar. [3]

122. Positive Thinking in American Religion and Science. Positive thinking in New England Transcendentalism, New Thought, Christian Science, and mainline Christianity. The emerging scientific study of the nature and effects of positive thinking in neurology, medicine, and psychology. FALL. [3] Pawelski.

130. Asian Religious Values in Contemporary Life. Asian religious values as they influence decisions in personal, political, business, and health matters. Analysis of how Buddhist, Confucian, Taoist, and Shinto religious teachings affect social mobility, international business, political conflict, and abortion. [3] (Not currently offered)

131. Themes in Western Religions. Introduction to the three monotheistic religions—Judaism, Christianity, and Islam—that trace their roots to Biblical Israel. Comparison in terms of evolution of selected rituals and beliefs and the relation of religion to social, political, and cultural institutions. [3] (Not currently offered)

132. Religion and Culture in Japan. Short stories, poetry, tea ceremony as windows upon Japanese experience. Transformation of Buddhism through the centuries according to Japanese assumptions of human nature, reality, and concept of ultimate. The Christian experience in Japan studied in terms of the influence of Japanese cultural ideals. [3] (Not currently offered)

133. Asia on Film. Cinematic perspectives on Asian religion and culture, Hindu, Buddhist, Taoist, Shinto, and Confucian traditions in India, Tibet, Vietnam, China, Japan, and U.S. Politics and significance of representation and interpretation. [3] (Not currently offered)

145. Interfaith Dialogue and African American Culture. An examination of the lives, thought, and activities of Malcolm X and Martin Luther King, Jr., with special attention to their significance as sources of dialogue for Christians and Muslims. Of particular importance are the constructive insights that these leaders provide for those who wish to understand the two great faith communities and culture in the African American context. SPRING. [3] Baldwin. (Offered 2005/2006)

150. Medicine, Healing, and Spirituality. Cross-cultural inquiry into the perspectives of modern Western scientific medicine and Asian healing and spiritual practices. Analysis of cultural and religious influences on the concepts of illness and health and the relationship of body and mind. Directed field research project. [3] (Not currently offered)

201. The Problem of Biblical Authority. Past and present controversies over the authority of scripture. Comparisons of doctrinal statements about scripture with actual uses of it by believers, both in history and today's churches and synagogues. [3] Patte. (Not currently offered)

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. MAYMESTER. [3] Anderson.

204. Protestant Conservatism 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] Baldwin. (Offered 2005/2006)

205. The Black Church in America. The development of the black church from the late eighteenth century to the present. Black denominationalism, church leadership, and the involvement of the church in the social, cultural, intellectual, political, and economic areas of African American life. [3] Baldwin. (Not currently offered)

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. SPRING. [3] Patte.

207. Jesus the Jew. The Jewishness of Jesus. Religious and political thought of Jesus's day. Origins of the Jewish sect that became Christianity. Jesus in early Judaism; rabbinic Judaism; Pharisaism. Political Rome in the shaping of Judaism and Christianity. SPRING. [3] Davis.

208. The Hebrew Bible. Selective study of each of the three major divisions of the Hebrew Bible. The early Hebrew beginnings and development of the Law; the Prophets and their leading ideas in relation to social, political, economic, and religious tensions of their age; and the Wisdom books and later historical writing. FALL. [3] Knight (Divinity School).

209. The New Testament. Selective study of the New Testament writings, showing the main characteristics of early Christianity as compared and contrasted with early Judaism and Hellenistic religions. Themes include religious authority in early Christian communities and the types of faith and ethics found within the New Testament traditions. SPRING. [3] Levine (Divinity School).

211. Jesus and the Early Christian Communities. A study of the ways in which the Gospel writers presented the traditions about Jesus in response to contemporary events, cultural situations, and religious questions that were current in first-century communities. The relation of the Jesus of history to the Gospel portrayals. Prerequisite: 109 or 209 or its equivalent. [3] Patte. (Offered 2005/2006)

212. The Pauline Interpretation of Christianity. An introduction to Pauline Christianity and its place in the early church, using the letters of Paul, the deuter-Pauline letters, and the portrait of Paul in Acts. Alternate prerequisite: 109 or 209. [3] Patte. (Not currently offered)

213. Ethics of the New Testament. Major ethical teachings as presented in New Testament documents, letters, and as interpreted through history and cultures. Fall. [3] Patte.

214. Modern European Christianity. European Christianity since the mid-seventeenth century. Attention to influential political, social, cultural, and philosophical developments. Prerequisite: 107. [3] (Not currently offered)

215. Formation of the Catholic Tradition. The expansion of Christianity, the development of doctrine, relationships with the Empire, and changing modes of Christian life from the second century into the middle ages, with emphasis on the periods and themes that are formative of the classical doctrines and institutional patterns. Focus on positions and attitudes still important today (not only in Catholicism but in Protestantism), on differences between contemporary assumptions and the realities of Christian life and thought in the past. Prerequisite: 107. FALL. [3] Burns (Divinity School).

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] Johnson (Divinity School). (Offered 2005/2006)

217. The History of Religion in the United States. History of organized religion in the United States from the adoption of the Constitution to the present time, with emphasis on the period from the Civil War to the present. FALL. [3] Flake (Divinity School).

218. Theology of the New Testament. Major theological themes such as the concepts of God, Christ, salvation, sin, evil, faith, hope, love as presented in New Testament documents and as interpreted through history and cultures. SPRING. [3] Patte.

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). SPRING. [3] Baldwin.

220. Constructions of Jewish Identity in the Modern World. How Jewish thinkers at the end of the nineteenth and early twentieth century addressed the question of individual and collective identity. Cultural, political, 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. FALL. [3] Urban.

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] (Not currently offered)

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. SPRING. [3] Welch.

226. Jewish and Christian Self-Definition in Antiquity. Topics explored through investigation of primary sources of formative Judaism, early Christianity, and Roman paganism include: messianism, sectarianism, and the “historical Jesus,” anti-Judaism, persecutions, debates over Law, Temple, Land, the “people of Israel,” and salvation, the role of pagan society, canonization, symbol systems, and archaeology. Prerequisite: at least one of the following: 109, 112, 209, or equivalent. [3] Levine (Divinity School). (Not currently offered)

228. Antisemitism and Jewish Identity. A historical and cultural analysis of the dilemmas that Jewish emancipation presented to both Jews and non-Jews in Europe, examined through the study of a variety of popular and elite cultural representations of Jews. How antisemitism became entangled with modern understandings of identity in terms of gender, sexuality, race, and class. SPRING. [3] Geller.

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. FALL. [3] Geller.

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] Welch. (Offered 2005/2006)

231. Women in Buddhist Traditions. Buddhist traditions through the contributions and concerns of women in various cultural contexts (India, Sri Lanka, Thailand, China, Japan, and North America) and time periods (ancient and modern). Critical analysis of practices, texts, and hermeneutical schemes that foster divergent images of women. [3] (Not currently offered)

232. Feminist Interpretations of Scripture. Issues, methods, and interpretations in contemporary feminist research on the Bible and on the history of early Christianity. Prerequisite: 108, 109, 208 or 209. [3] Levine (Divinity School). (Not currently offered)

233. History and Memory in Modern Judaism. The role of memory in traditional Jewish literature, the historiography and ideology of the nineteenth-century "Science of Judaism" school, Zionist reconstructions of the past, twentieth-century representations of the Shoah (Holocaust), uses of myth in the State of Israel. SPRING. [3] Urban.

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] Gay. (Not currently offered)

235. Freudian Theories and Religion. A critical assessment of psychoanalytic theories as an explanation of religious behavior. Study of the basic structure of these theories followed by a systematic critique of texts by Sigmund Freud and Erik Erikson. Examination of religious narrative forms. Recommended: 120 or 121. [3] Gay. (Offered 2005/2006)

236. The Religious Self according to Jung. The religious core of human existence as related to the concepts of the archaic unconscious and the birth of the self in C. G. Jung's analytical psychology. Study of the life and thought of Jung as illustrated by his autobiography, *Memories, Dreams, Reflections*. Critical assessment of his theory as a means for understanding religious phenomena. [3] Gay. (Not currently offered)

237. Psychology of Religious Myth and Ritual. Examination of religious rituals and myths from both Christian and other traditions. Critical review of major psychological theories of ritual and myth. Their relevance to an understanding of myth and ritual as religious phenomena. [3] Gay. (Not currently offered)

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] Geller. (Offered 2005/2006)

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. FALL. [3] Cherry.

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 meditative techniques, and its contemporary significance. [3] (Not currently offered)

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. SPRING. [3] McGregor.

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. Prerequisite: one course in Religious Studies. SPRING. [3] McGregor.

259. The Book of Joshua. An exegesis of the book of Joshua, with special attention paid to literary features, issues of historiography and archaeological evidence, ideological and religious concerns, and relation to other texts of the Hebrew Bible, especially the Deuteronomistic History. SPRING. [3] Knight.

260. Rabbinic Thought and Theology. Focus on the Rabbinic texts (first to sixth century) which defined traditional Judaism in post-Temple world. Emphasis on discontinuities from Hebrew Bible and midrashic techniques of rereading Scripture. FALL. [3] Cherry.

280. Senior Seminar. Methods for studying religion and religious traditions. Open only to seniors with a major or minor in Religious Studies. FALL. [3] McGregor.

289a–289b. Independent Study. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6]

294. Special Topics in Religious Studies. [3] Staff.

295. Special Topics in Religious Studies. [3] Staff.

299a–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 honors students. FALL, SPRING. [3–3] Staff.

Sociology

CHAIR Gary F. Jensen

DIRECTOR OF UNDERGRADUATE STUDIES George Becker

DIRECTOR OF GRADUATE STUDIES Holly J. McCammon

PROFESSORS EMERITI Ernest Q. Campbell, Jack P. Gibbs, Walter R. Gove,
Richard A. Peterson

PROFESSORS Daniel B. Cornfield, Larry W. Isaac, Gary F. Jensen, Holly J. McCammon,
Ronnie Steinberg

ASSOCIATE PROFESSORS George Becker, Karen E. Campbell, Monica J. Casper,
James J. Lang

ASSISTANT PROFESSORS Tony N. Brown, Laura Carpenter, Michael Ezell, Jennifer Lena,
Richard Lloyd, Richard Pitt, Steven J. Tepper

SENIOR LECTURER Ramón Jrade

1 SOCIOLOGY, the study of social relations, offers students a better understanding of their society and the consequences of social interaction. The department's courses cover a wide range of subjects: social problems and deviant behavior, including crime, delinquency, and mental illness; minority groups and race relations; methods of social research; cities, communities, and urbanization; occupations and the organization of work; migration, mortality, and fertility; social classes and stratification;

organizations and associations; social psychology; and the social organization of religion, law, medicine, art, political activities, and business. 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 30 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. In addition to these sociology courses, students must take a statistics course as part of their training in research skills. The statistics course does not count toward the 30 hours in sociology.

Course work for the major is distributed as follows:

<i>Introduction:</i> Sociology 101 or 102	3
<i>Theory:</i> Sociology 201	3
<i>Research Skills:</i> (3 courses)	
Sociology 211, followed by	3
Sociology 212 (or Independent Research 295a, or 295b, or 299)	3
Sociology 127 (statistics) (or Math 127b, 180, or 218, or Economics 150), or Psychology 209 or Peabody Psychology and Human Development Statistics 2101 for those students who double major in sociology or one of these two programs)*	(3)
<i>Core Areas:</i>	
Crime, Law, and Deviance:	
Sociology 224, 231, 232, 233, 234, 240, 263	
Organizations, Politics, and Inequality:	
Sociology 226, 235, 236, 239, 243, 244, 247, 249, 250, 251, 253, 254, 255, 268	
Family, Medicine, and Mental Health:	
Sociology 220, 230, 237, 261, 264, 267, Anthropology 265, Psychology 262	
Culture and Social Change:	
Sociology 203, 204, 217, 241, 242, 245, 246, 248, 256, 257, 258, 260, 269, 270, 275, 277, 278, 279, 281, 291	
Students must take at least one course in three of the four core areas	9
<i>Electives:</i> Any 3 sociology courses not used to satisfy the above requirements	<u>9</u>
Total hours	30

* Not included in the 30 hours.

Honors Program

The honors program offers superior students the opportunity to pursue intensive work within sociology. Students who meet the College requirements and are recommended for the program by the director of undergraduate studies will typically begin the program in the fall of their junior year. Interested sophomore majors who have a 3.0 grade point average in all courses and in sociology courses should contact the director of undergraduate studies for information.

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 or 102	3
2. Sociology 201	3
3. Four courses, including at least one from three of the four core areas listed above in the major	<u>12</u>
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.

101. Introduction to Sociology. The study of human society; the nature of culture and its organization. Processes of communication, socialization, mobility, population growth. Credit not given for both 101 and 103. FALL, SPRING. [3] Staff.

102. Contemporary Social Problems. The impact of technological and social change and relatively high mobility in Western society. Deviation from social norms, conflict concerning social goals and values, and social disorganization as these apply to family, economic, religious, and other institutional and interpersonal situations. FALL, SPRING. [3] Staff.

103. Social Organization and Inequality. Contemporary sociological perspectives on the organization of inequality in American institutions, including the economy, work place, family, criminal justice system, health care system, and educational system. Examination of racial, ethnic, gender, and class dimensions. Credit not given for both 101 and 103. [3] (Not currently offered)

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. FALL, SPRING. [3] Steinberg, Pitt.

115, 115W. Freshman Seminar. [3]

127. Statistics for Social Scientists. Introduction to 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. FALL. [3] Noble.

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. SPRING. [3] Becker.

203. Perspectives on Women in the World. The situation of women around the world examined through the lens of gender as a social construction. Topics include feminist critiques of knowledge, family and work, sexuality, health and medicine, the women's movement, and the future of feminism in a global context. [3] (Not currently offered)

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] (Not currently offered)

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: major or minor standing in the department. FALL. [3] Campbell, Smith.

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 a statistics course. SPRING. [3] Ezell, Smith.

217. Folklore and Folklife. An examination of folklore and the groups that produce it. Short fieldwork exercises and a research paper. [3] (Not currently offered)

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] (Not currently offered)

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. FALL. [3] Steinberg.

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. [3] (Not currently offered)

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. FALL, SPRING. [3] Becker, Pitt.

231. Criminology. The nature, distribution, causes, and control of crime with emphases on contemporary American society and a broad range of types of crime. FALL, SPRING. [3] Karpos, Becker.

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. FALL. [3] Ezell.

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. FALL. [3] Becker.

234. Prison Life. Prison life from the perspective of prisoners, officials, and the society in which they operate. FALL, SPRING. [3] Karpos, Noble.

235. Contemporary American Society. Shifts in the political, economic, and social structure of the United States; changes in technology, demography, and social mores. [3] (Not currently offered)

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 the national economy, and other factors will be considered. Theoretical and empirical analysis focusing on the United States. [3] (Not currently offered)

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. SPRING. [3] Brown.

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. SPRING. [3] Steinberg.

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. SPRING. [3] McCammon.

241. Art in Society. A description of the process of creating, displaying, merchandising, and evaluating art. Analysis of artist circles, production companies, training centers, patrons, critics, dealers, audiences, and government influences in the contemporary American scene as well as in other times and places. [3] (Not currently offered)

242. The Urban Community. Social organization of the urban community. Historical and contemporary patterns in the structure and growth of the city. World urbanism and social change. SPRING. [3] Lloyd.

243. Revolutions in the Modern World. From the French Revolution to the breakdown of communism and the rise of radical Islamic movements. Diffusion and transformation of challenging strategies and ideologies. Developmental paths opened or altered on a global scale. Links to domestic terror and international terrorism. FALL. [3] Jade.

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. SPRING. [3] Jade.

245. Music in Society. Production, use, and evaluation of music as social processes and shared practices. How music expresses status and identity. Making music together and making musicians. The impact of changing technology on music. Examples use pop, rock, classical, jazz, and country, hip hop, salsa, blues, alternative, and folk music. [3] (Not currently offered)

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. SPRING. [3] Karpos.

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] (Not currently offered)

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. SPRING. [3] Lena.

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. FALL, SPRING. [3] McCammon, Isaac.

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. SPRING. [3] Carpenter.

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. SPRING. [3] Campbell.

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. FALL. [3] Pitt.

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. FALL, SPRING. [3] Smith, Pitt.

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] (Not currently offered)

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. FALL, SPRING. [3] Carpenter.

258. The South in American Culture. The changing relationship between the South and the rest of the country and its effects on understandings and definitions of the South, and changes in southern social structures and patterns, race relations, and economic and political institutions. [3] (Not currently offered)

260. The Individual and Society. How individuals, as social beings, are created by society and how society is in turn created and sustained by individuals. The social self, stigmas, deviance and identity, social structure and personality, small group processes, collective behavior. [3] (Not currently offered)

261. Work and Family in American Life. The changing relationship between work and family from the Colonial era to the present. Role of the U.S. corporation, specialization of the family, sex roles, social mobility. [3] (Not currently offered)

263. Religion, Science, and the Paranormal. Critical study of paranormalism as a belief system at the fringes of science and religion. [3] (Not currently offered)

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. FALL. [3] Brown.

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. [3] (Not currently offered)

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. FALL. [3] Carpenter.

269. Ethnic American University Journeys. Evolution of racial and ethnic minority presence on college campuses, including integration/self-segregation, affirmative action, minority student support/retention, representation, activism. Examination of Vanderbilt's response to diversity issues as a campus-wide lab. [3] (Not currently offered)

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. FALL. [3] Lang.

275. African Society. Traditional African social structure. Influences of Europe, Asia, and the Americas on shaping African society. Emphasis on how traditional institutions have persisted or changed over time. [3] (Not currently offered)

276. Contemporary Africa. Colonial and post-colonial African institutions. Internal and external influences on contemporary African society. Social, economic, political, and health challenges. [3] (Not currently offered)

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] (Not currently offered)

278. Comparative Asian Development. Emphasis on modern India, China, and Japan. Current history and long-term trends. Religious, social, and artistic traditions. Models of modernization; dilemmas of development; challenges of globalization. [3] (Not currently offered)

280a–280b. Internship. 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, 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, completion of 6 hours of sociology, and prior departmental approval of the student's plans are required.

Sociology 280a. Internship Research and Readings. FALL, SPRING. [Variable credit: 1–6]

Sociology 280b. Internship Training. 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. FALL, SPRING. [1–9]

281. Development for a Small Planet. Community-based approaches to public health, food production, and education. Appropriate technology; creating sustainable life styles; dilemmas of big development. Examples from Asia, Africa, and the Americas. [3] (Not currently offered)

291. The Structure of Modern Spanish Society: An Introduction. After a historical introduction covering the years 1898–1939, present-day Spain will be studied with emphasis on topics such as the following: industrialization, emigration, influx of tourists, technocracy, and the democratic process in post-Franco Spain. Offered only in the Vanderbilt in Spain program. [3] (Not currently offered)

294. Seminars in Selected Topics. May be repeated for credit once if there is no duplication of topic. [3] (Not currently offered)

295a–295b. Research Project. An individual research project designed to increase knowledge and skill in research. Prerequisite: 211 and a statistics course. Admission by consent of instructor and chair of the department. FALL, SPRING. [3–3] Staff.

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. Open only to honors candidates. [Variable credit: 3–6, not to exceed a total of 12]

299. Independent Research and Writing. FALL, SPRING. [Variable credit: 1–6; may be repeated, not to exceed a total of 6]

The following courses are offered in years suited to graduate students in residence:

301. Classical Sociological Theory and Major Theorists. [3]

302. Contemporary Theory. [3]

310. Sociological Inquiry. [3]

311. Multivariate Analysis I. [3]

312. Multivariate Analysis II. [3]

313. Quantitative Methods Workshop. [3]

323. Teaching Workshop. [3]

331. Survey Seminar on Inequalities and Movements. [3]

333. Survey Seminar on Cultural Sociology. [3]

335. Survey Seminar on Deviant Behavior and Social Control. [3]

339. Survey Seminar on Political Sociology. [3]

341. Survey Seminar on Population Studies and Human Ecology. [3]

343. Survey Seminar on Social Psychology. [3]

- 345. Survey Seminar on Social Stratification.** [3]
347. Survey Seminar on Sociology of Science and Knowledge. [3]
361. Special Topic Seminars on Social Phenomena at the Macro Level. [3]
363. Special Topic Seminars on Institutions and Organizations. [3]
367. Special Topic Seminars on Norms, Power, and Related Normative Phenomena. [3]
368. Special Topic Seminars on Social Processes and Social Change. [3]
371. Special Topic Seminars on Theory and Methodology. [3]
390a–390b. Directed Studies. [Variable credit: 1–3 each semester]

Spanish and Portuguese

ACTING CHAIR Victoria A. Burrus

DIRECTOR OF UNDERGRADUATE STUDIES Victoria A. Burrus

DIRECTOR OF GRADUATE STUDIES Andrés Zamora

PROFESSORS EMERITI J. Richard Andrews, John L. Bingham, John Crispin,

Russell G. Hamilton, C. Enrique Pupo-Walker, Francisco Ruiz-Ramón

PROFESSORS Earl Fitz, Edward Friedman, Cathy L. Jrade, William Luis, René Prieto,

Philip D. Rasico

ASSOCIATE PROFESSORS Susan Berk-Seligson, Victoria A. Burrus, Benigno Trigo,

Andrés Zamora

ASSISTANT PROFESSORS M. Fráncille Bergquist, Jason Borge, María José de la Fuente,

Carlos Jáuregui, Christina Karageorgou, Emanuelle K. F. Oliveira

SENIOR LECTURERS Frances Alpren, Tatiana Botero, Cristina Capella, Sarah Delassus,

Paul Miller, Elena Olazagasti-Segovia, Raquel Rincón, Francisco Saez, Lorraine Sciadini,

Waldir Sepúlveda, Cynthia M. Wasick

1 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. Two courses in Catalan are also offered.

The department offers programs of concentration in both Spanish and Spanish and Portuguese. Spanish majors specialize either in literature and culture or in language and culture; the latter specialty includes theoretical courses in Spanish phonology, morphology and syntax, dialectology, and history of the Spanish language. 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 or participate in honors work. Minors in Spanish and in Portuguese are also offered.

The department serves majors from the Center for Latin American and Iberian Studies and the Center for European Studies. On the graduate level, the department offers the master of arts and master of arts in teaching 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 (Madrid or Palma de Mallorca) or in Vanderbilt programs in 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

Spanish majors choose between two programs of concentration: Program I and Program II. The basic requirement for both programs is a minimum of 30 credit hours in Spanish courses above 200. The distribution requirements are as follows:

Program I. Concentration in Spanish Language, Literature, and Culture.

1. Core requirements: 201, 202, and 203.
2. Literature: Nine hours from courses numbered 230–281 or 294.
3. Culture: Three hours from courses numbered 204, 221–226, or 296.
Students may substitute a literature course numbered 230–281 or 294.
4. Language: Three hours from courses numbered 206–213. Students may substitute another literature course numbered 230–281 or 294, or another culture course numbered 221–226 or 296.
5. Linguistics: Three hours from courses numbered 214–220, 291, or 295.
6. Elective: Three hours from courses numbered above 200 (except 293). Students may substitute a course in either Portuguese (102 or higher) or Catalan (102 or higher).

Program II. Concentration in Spanish Language, Linguistics, and Culture.

1. Core requirements: 201, 202, and 203.
2. Linguistics: Six hours from courses numbered 214–220, 291, or 295.
3. Language: Three hours from courses numbered 206–213. Students may substitute a linguistics course numbered 214–220, 291, or 295.
4. Culture: Three hours from courses numbered 204, 221–226, or 296.
Students may substitute another linguistics course numbered 214–220, 291, or 295, or another language course numbered 206–213.
5. Literature: Six hours from courses numbered 230–281 or 294.
6. Elective: Three hours from courses numbered above 200 (except 293). Students may substitute a course in either Portuguese (102 or higher) or Catalan (102 or 200).

A more advanced composition course may be substituted for 201. A more advanced conversation course may be substituted for 202. Spanish 203 is prerequisite for all literature courses offered by the department. Students must take Spanish 201, 202, and 203 in order to participate in Vanderbilt in

Spain. 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 language, literature, and culture (Program I) or Spanish language, linguistics, and culture (Program II), in which one of the required literature courses is either the undergraduate seminar, Spanish 280, which may be taken during either the junior or senior year, or a graduate seminar (300-level course) 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 201 (A more advanced composition course may be substituted)	3
Spanish 202 (A more advanced conversation course may be substituted)	3
Spanish 203	3
One advanced Spanish literature course numbered between 230 and 281, or 294	3
One advanced course in Spanish language or linguistics numbered between 206 and 220, or 291 or 295	3
One additional course in civilization, literature, or language/linguistics, chosen from courses numbered between 204 and 281, or 291, 294, 295, or 296	<u>3</u>

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
Portuguese 205 (Introduction to Luso-Brazilian Literature)	3
Portuguese 225 (Brazilian Culture)	3

At least six additional hours selected from among other 200-level courses (three of which are listed below); one 300-level graduate course or seminar may, with the permission of the minor adviser, be included:

Portuguese 232 (Introduction to Brazilian Literature), 285 (Modern Brazilian Literature), 294 (Special Topics), 385 (Seminar).

Program of Concentration in Spanish and Portuguese

This major focuses on the two dominant languages (Spanish and Portuguese) of Latin America and their literatures and cultures (those of Spanish America and Brazil).

The basic requirement for this major is a minimum of 33 credits in Spanish and Portuguese numbered 200 or above. The distribution is as follows:

1. Core requirements of Spanish 201, 202, and 203; Portuguese 200 and 205.
2. At least two of the following Spanish courses: 223, 235, and 236.
3. At least two of the following Portuguese courses: 225, 232, 285, and 385.
4. Two electives to be chosen from Spanish 223, 235, 236, Spanish/Portuguese 293 and from Portuguese 225, 232, 285, 297, 298, 385. A student may also choose a Spanish or Portuguese 294, if the topic relates to Latin American literature and/or culture.

Under exceptional circumstances, a student may request permission from both the director of undergraduate studies and from the Chair to replace a requirement in area 2 or 4 with another advanced-level Spanish course or to replace a requirement in area 3 or 4 with another advanced-level Portuguese course.

Program of Concentration in Spanish and European Studies

Students in Spanish 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

Spanish language and literature core courses (9 hours): SPAN 201, 202, and 203 (212 may be substituted for 201; 207 or 208 may be substituted for 202)

Spanish culture and civilization (6 hours): Two of the following: SPAN 204, 221, 226, 296; Art and Art History 237*, 238*, 294* (*offered in *Vanderbilt in Spain*)

Spanish literature (6 hours): Two Spanish courses numbered from 230–281 or 294

Elective (6 hours): Two additional Spanish courses that count towards the Spanish major. Students may substitute one course in either Portuguese (102 or higher) or Catalan (102 or higher).

Total in Spanish: 27 hours

European Studies

European Studies core courses (6 hours): EUS 201 and 250

Social Science (3 hours): One course in economics, political science, or sociology selected from the list of social science courses approved for European Studies

History (3 hours): One of the following: History 213, 216, 218, 220, 225, 226, 228, 230, 258, 259

Elective (3 hours): One additional course in European Studies from those listed above under Social Science and History

Total in European Studies: 15 hours

Program of Concentration in Spanish, Portuguese, and European Studies

Students in Spanish and Portuguese 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

Spanish language and literature core courses (9 hours): SPAN 201, 202, and 203 (212 may be substituted for 201; 207 or 208 may be substituted for 202)

Spanish culture and civilization (3 hours): One of the following: SPAN 204, 221, 226, 296; Art and Art History 237*, 238*, 294* (*offered in *Vanderbilt in Spain*)

Spanish literature (3 hours): Any Spanish course numbered from 230–281 or 294

Elective (3 hours): Any additional Spanish course that counts toward the Spanish major

Total in Spanish: 18 hours

Portuguese

Portuguese language and literature courses (6 hours): PORT 200 and 205
Brazilian culture and civilization (3 hours): PORT 225

Total in Portuguese: 9 hours

European Studies

European Studies core courses (6 hours): EUS 201 and 250
Social Science (3 hours): One course in economics, political science, or sociology selected from the list of social science courses approved for European Studies
History (3 hours): History 213, 216, 218, 220, 225, 226, 228, 230, 258, 259
Elective (3 hours): One additional course in European Studies from those listed above under Social Science and History

Total in European Studies: 15 hours

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.

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 an achievement test score in Spanish to be placed correctly.

100. Beginning Spanish. Designed for students with no previous exposure to Spanish. Development of basic listening, speaking, reading, and writing skills with exposure to aspects of Spanish-speaking culture through a communicative, task-based approach. Conducted primarily in Spanish. Prerequisite: no previous study of the language. Four hours of classroom instruction plus one hour of technology-based instruction. [5] Staff.

101. Elementary Spanish I. Development of basic listening, speaking, reading, and writing skills with exposure to aspects of Spanish-speaking cultures through a communicative, task-based approach. Conducted entirely in Spanish. Prerequisite: some previous study of the language. Four hours of classroom instruction plus one hour of technology-based instruction. [5] Staff.

102. Elementary Spanish II. Further development of listening, speaking, reading, and writing skills through a communicative, task-based approach with exposure to aspects of Spanish-speaking culture. Conducted entirely in Spanish. Four hours of classroom instruction plus one hour of technology-based instruction. Prerequisite: 100 or 101, or appropriate placement test score. [5] Staff.

Starred course 104 is prerequisite for all Spanish courses numbered above 199. Spanish 203 is prerequisite for 231 and all higher-numbered literature courses.

★104. Intermediate Spanish. Development of intermediate linguistic competence in Spanish (listening, speaking, reading, and writing) using a task- and text-based approach. Communication processes and creative skills. Development of rhetorical techniques in Spanish through the study of grammar and discourse analysis. Cultures of Spanish-speaking countries by incorporating authentic materials. Four hours of classroom instruction plus one hour of technology-based instruction. Prerequisite: 102 or appropriate placement test score. [5] Staff.

115W. Freshman Seminar.

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. FALL, SPRING. [3]

201. 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. Prerequisite: 104 or appropriate placement test score. FALL, SPRING. [3] Staff.

202. Spanish for Oral Communication through Cultural Topics. Development of speaking skills in Spanish through the study of Spanish/Hispanic culture, and Spanish and Spanish-American current affairs. Contemporary articles, short texts, TV news, documentaries, and Web materials. Special attention is given to different registers of spoken Spanish, and the development of effective strategies for oral communication. Prerequisite: 201 or appropriate placement test score. FALL, SPRING. [3] Staff.

203. Introduction to Spanish and Spanish American Literature. Critical reading and methods of literary analysis. Selections cover all genres in several periods. Prerequisite: 201 and 202. FALL, SPRING. [3] Staff.

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: 201 and 202. Not open to students who have studied abroad. FALL. [3] Staff.

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. Prerequisite: 201. FALL, SPRING. [3] Sciadini, Wasick.

207. Advanced Conversation. An intercultural approach contrasting Spanish and American perspectives. Discussions and oral presentations on contemporary issues. For students with a high level of oral proficiency, especially those returning from the Vanderbilt in Spain program. SPRING. [3] Staff.

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. Open to students who have completed at least one course beyond the 201, 202, and 203 sequence but closed to native speakers. FALL. [3] Olazagasti-Segovia.

209. The Spanish Language. An advanced grammar course with emphasis on problem constructions, stylistics, and composition. Offered only in the Vanderbilt in Spain program. FALL, SPRING. [3]

210. Spanish for the Legal Profession. Advanced conversation course incorporating linguistic skills and cultural information necessary for dealing with legal issues in the Hispanic world. Service learning with the Latino community as an important component. Prerequisite: 201 and 202; closed to native speakers of Spanish. FALL. [3] Wasick.

211. Spanish for the Medical Profession. Advanced conversation course incorporating linguistic skills and cultural information necessary for dealing with medical issues in the Hispanic world. Service learning with the Latino community as an important component. Prerequisite: 201 and 202; closed to native speakers of Spanish. SPRING. [3] Sciadini.

212. Advanced Grammar and Stylistics. Review of advanced grammar and syntax through the stylistic analysis of literary texts from several genres and periods. Prerequisite: 201, 202, and 203 or equivalent. Open to juniors, seniors, and graduate students. SPRING. [3] Olazagasti-Segovia.

213. Translation and Interpretation. The art and practice of translation and interpretation dealing with materials from science, economics, politics, belles lettres, etc. Prerequisite: 201 and 202. SPRING. [3] Bergquist.

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. [3] Rasico. (Offered 2005/2006)

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. FALL. [3] Bergquist. (Offered 2005/2006)

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. FALL. [3] Rasico.

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. FALL. [3] Bergquist.

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. SPRING. [3] Rasico. (Offered 2005/2006)

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. [3] Rasico.

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. [3] Rasico. (Offered 2005/2006)

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: 201 and 202. [3] Burrus.

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: 201 and 202. SPRING. [3] Jade. (Offered 2005/2006)

226. Film and Recent Cultural Trends in Spain. The cinema and Spanish cultural evolution during and after the Franco dictatorship. Prerequisite: 203, 212, or Vanderbilt in Spain semester. [3] (Not currently offered)

230. Development of Lyric Poetry. Popular and traditional forms; the sonnet and other Renaissance and Baroque classical forms. Romanticism. [3] Staff. (Not currently offered)

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. [3] Burrus. (Offered 2005/2006)

232. Literature of the Spanish Golden Age. Representative works from early modern Spain, including poetry, prose, and drama of the Renaissance and Baroque periods. [3] Friedman. (Not currently offered)

233. Modern Spanish Literature. The eighteenth and nineteenth centuries: essays and Neoclassic literature, Romanticism, Realism, and Naturalism. Representative works and authors from all genres. [3] Zamora. (Offered 2005/2006)

234. Contemporary Spanish Literature. Representative authors and works from the Generation of 1898 to the present. [3] Staff. (Not currently offered)

235. Spanish American Literature. The development of all forms from colonial times to World War I. The different patterns of interaction of native American, African, and European cultural traditions. The unity and diversity of Spanish American literature. FALL. [3] Jáuregui, Trigo.

236. Contemporary Literature of Spanish America. All literary forms from World War I to the present. Emphasis on the works of Neruda, Borges, Paz, García Márquez, and others. [3] Jrade, Jáuregui, Prieto, Trigo.

237. Contemporary Lyric Poetry. From Modernism to the present in Spain and Spanish America. SPRING. [3] Karageorgou. (Offered 2005/2006)

239. Development of the Novel. From the seventeenth century through Realism and Naturalism in Spain and Spanish America. [3] Zamora.

240. The Contemporary Novel. New forms in the twentieth-century novel in Spain and Spanish America. [3] Staff. (Not currently offered)

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. SPRING. [3] Olazagasti-Segovia.

244. Afro-Hispanic Literature. From nineteenth-century slave narrative to modern writers such as Miguel Barnet, Alejo Carpentier, and Quince Duncan. [3] Luis. (Offered 2005/2006)

246. Don Quixote. Directed reading and intensive study of the novel. [3] Friedman. (Not currently offered)

251. Development of Drama. Spanish theatrical works from 1600 to 1900, including the Golden age comedia, neoclassicism, romanticism, and early realism in drama. [3] Friedman. (Not currently offered)

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. [3] Burrus. (Not currently offered)

260. Development of the Short Story. From early manifestations in Spain through its current forms in Spain and Spanish America. [3] Friedman, Prieto.

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. [3] Staff. (Not currently offered)

281. The Theory and Practice of Drama. Critical works and plays from different periods. Introduction to the principles of dramaturgy. [3] Friedman. (Not currently offered)

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. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed 12 over a four-semester period] Staff.

291. Spanish Applied Linguistics. Addresses main areas of Spanish applied linguistics needed by future educators of Spanish language and culture. Includes an introduction to the field of applied linguistics, research in the area of second language acquisition, a study of the Spanish language from the English-speaking learner's point of view, the relationship between language and society/culture, the use of technology, and proficiency assessment. Reading of relevant literature and practical exercises to foster critical thinking. Intended for upper-level undergraduates and graduate students. SPRING. [3] De la Fuente.

294. Special Topics in Hispanic Literature. FALL, SPRING. [May be repeated for credit if there is no duplication of topic] [3] Staff.

295. Special Topics in Spanish Language and Linguistics. FALL, SPRING. [May be repeated for credit if there is no duplication of topic] [3] Staff.

296. Special Topics in Hispanic Culture. FALL, SPRING. [May be repeated for credit if there is no duplication of topic] [3] Staff.

299a–299b. Senior Honors Thesis. [3] Staff.

Seniors are eligible to take one graduate course or seminar in the last semester of their undergraduate program, subject to approval of the instructor of the course; of the department's director of graduate studies, who will assess the student's preparation; and of the Graduate School. For further information on the courses listed below, see the Graduate School catalog.

301. Literary Analysis and Theory. FALL. [3] Zamora or Friedman.

302. Ibero-Romance Philology. [3] Rasico.

310. Foreign Language Learning and Teaching. FALL. [3] De la Fuente, Scott.

311. Spanish Second Language Acquisition. [3] De la Fuente.

312. Foreign Language Curriculum Development and Evaluation. [3] De la Fuente.

314. Introduction to Latin American Colonial Studies. [3] Jáuregui, Fitz.

331. Seminar: Studies in Medieval Literature. [3] Burrus.

341. Seminar: Poetry of the Golden Age. [3] Friedman.

343. Seminar: Studies in Golden Age Drama. [3] Friedman.

345. Studies in Golden Age Prose: *Don Quixote*. Fall. [3] Friedman.

362. Seminar: The Realistic Novel of the Nineteenth Century. [3] Zamora.

372. Seminar: Studies in Twentieth-Century Spanish Literature. [3] Staff.

387. Seminar: Contemporary Spanish American Novel. SPRING. [3] Luis, Jade.

388. Seminar: Special Topics in Spanish Literature. [3] Staff.

389. Seminar: Special Topics in Spanish American Literature. FALL. [3] Jrade.

396. Seminar: Special Studies in Spanish Linguistics. [Variable Credit: 1–6]

397. Special Studies in Spanish Literature. [Variable Credit: 1–6]

398. Special Studies in Spanish American Literature. [Variable Credit: 1–6]

Courses in English Translation

293. Contemporary Latin American Prose Fiction in English Translation. (Also listed as Portuguese 293) A study of major themes and techniques of the contemporary fiction in Spanish America and Brazil. Does not count toward the hours required for a major or minor in Spanish or Portuguese. SPRING. [3] Fitz, Trigo. (Offered 2005/2006)

Portuguese

102. Intensive Elementary Portuguese. Intensive Elementary and Intermediate Portuguese. (Formerly Portuguese 110a) An accelerated introduction to reading, writing, speaking, and listening. Emphasis on practical usage. Open to students with prior study of another Romance language or by permission of instructor. May be counted as an elective toward the major in Spanish. FALL. [5] Staff.

115, 115W. Freshman Seminar.

200. Intermediate Portuguese. Review of Portuguese grammar with emphasis on conversation, composition, and reading of modern Portuguese literary texts. Prerequisite: 102 or equivalent. SPRING. [3] Staff.

205. Introduction to Luso Brazilian Literature. Critical readings and methods of literary analysis. Selections include masterpieces from Portugal and Brazil and cover all genres in several periods. Emphasis on improving conversational and writing skills. Prerequisite: 200. FALL. [3] Oliveira.

225. Brazilian Culture. Examination of the values and attitudes that shape Brazil and Brazilian national identity; course topics include history, race relations, literature, cinema, and ecology. Taught in English with optional hour in Portuguese for students interested in pursuing the language. FALL. [3] Oliveira.

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. FALL. [3] Fitz. (Offered 2005/2006)

285. Modern Brazilian Literature. The development of Brazilian literature from the Semana de Arte Moderna to the present. Emphasis on the modernist and neo-modernist movements. [3] Staff. (Not currently offered)

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. FALL, SPRING. [Variable credit: 1–3 hours, not to exceed 12 over a four-semester period]

294. Special Topics in Portuguese Language, Literature, or Civilization. FALL. [3] Fitz, Oliveira.

297. Latin American Literature in a Comparative Perspective: From the Pre-Columbian Era through the Nineteenth Century. Spanish American and Brazilian literature from the conquests to the end of the nineteenth century. Authors may include Sor Juana, Mathos, Alencar, Assis, and Carrasquilla. Prerequisite: 205. FALL. [3] Fitz. (Offered 2005/2006)

298. Latin American Literature in a Comparative Perspective: The Twentieth Century up to the Present. Spanish American and Brazilian literature from twentieth century and to the present. Texts may include *Os sertões*, *La guerra del fin del mundo*, *Ficciones*, *Perto do coração selvagem*, and *Água viva*. Prerequisite: 205. SPRING. [3] Fitz. (Offered 2005/2006)

Seniors are eligible to take one graduate course or seminar in the last semester of their undergraduate program, subject to approval of the instructor of the course; of the department's director of graduate studies, who will assess the student's preparation; and of the Graduate School. For further information on the courses listed below, see the Graduate School catalog.

301. Literary Analysis and Theory. [3]

302. Ibero-Romance Philology. [3] Rasico.

310. Foreign Language Learning and Teaching. FALL. [3] De la Fuente, Scott.

385. Special Topics in Luso-Brazilian Literature. SPRING. [3] Fitz. (Offered 2005/2006)

397. Special Studies in Portuguese Literature. [Variable Credit: 1–6]

398. Special Studies in Brazilian Literature. [Variable Credit: 1–6]

Courses in English Translation

293. Contemporary Latin American Prose Fiction in English Translation. (Also listed as Spanish 293) A study of major themes and techniques of the contemporary fiction in Spanish America and Brazil. Does not count toward the hours required for a major or minor in Spanish or Portuguese. SPRING. [3] Fitz, Trigo. (Offered 2005/2006)

295. Special Topics in Portuguese and Brazilian Literature or Civilization in English Translation. Does not count toward a major or minor in Portuguese. [3] (Not currently offered)

Catalan

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 highly recommended. May be counted as an elective toward the major in Spanish. [3] Rasico.

200. Intermediate Catalan. Review of Catalan grammar with emphasis on conversation, composition, and reading of modern Catalan literary texts. Prerequisite: 102 or equivalent. [3] Rasico.

Teacher Education

1 STUDENTS interested in preparing for licensure as early childhood, elementary, special education, or secondary school teachers should meet with Associate Dean M. Fráncille Bergquist, 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

Foreign Languages (French, German, Latin, Spanish)

Mathematics

Science (Biology, Chemistry, Earth and Space Science, Physics)

Social Studies (History, Economics, and Political Science). Psychology and Sociology may become additional endorsement areas for students who also have selected history, political science, or economics 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.

Women's Studies

DIRECTOR Monica Casper

ASSOCIATE DIRECTOR Gay H. Welch

ASSISTANT DIRECTOR Alison M. Piepmeier

Affiliated Faculty

PROFESSORS Thadious Davis (English), Lynn E. Enterline (English), Gary Jensen (Sociology), Leah S. Marcus (English), Dana Nelson (English), Ronnie Steinberg (Sociology), Carol M. Swain (Political Science), Cecelia Tichi (English), Susan F. Wiltshire (Classical Studies)

ASSOCIATE PROFESSORS Karen E. Campbell (Sociology), Beth A. Conklin (Anthropology), Kate Daniels (English), Carolyn Dever (English), Thomas A. J. McGinn (Classical Studies), Bridget Orr (English), Mark Schoenfield (English), Kathryn Schwarz (English), John Sloop (Communication Studies and Theatre), Arleen Tuchman (History), Holly Tucker (French and Italian)

ASSISTANT PROFESSORS Brooke Ackerly (Political Science), Laura Carpenter (Sociology), Tina Chen (English), Lynn Clarke (Communication Studies and Theatre), Katherine B. Crawford (History), Cynthia Cyrus (Blair School), Anne Demo (Communication Studies and Theatre), Kathy Gaca (Classical Studies), Sean X. Goudie (English), Christina Karageorgou- Bastea (Spanish and Portuguese), José Medina (Philosophy), Charles Morris (Communication Studies and Theatre), Emanuelle Oliveira (Spanish and Portuguese), Diane Perpich (Philosophy), Richard N. Pitt (Sociology), Michele Salisbury (Nursing), Gay N. Welch (Religious Studies), Barbara Weinlich (Classical Studies), Meike G. J. Werner (Germanic and Slavic), Paul Young (English)

SENIOR LECTURERS Tracy Barrett (French and Italian), Elizabeth Boyd (American and Southern Studies), Rory Dicker, Yollette Jones (History), Linda Manning, Elena Olazagasti-Segovia (Spanish and Portuguese), Alison Piepmeier, Diane Sasson

1 WOMEN'S Studies is an interdisciplinary program that examines gender as a social construct, as historically variable, and as it orders human behavior, perceptions, and values. Women's Studies also takes, as a focus of inquiry, women's material, cultural, and economic production, their collective undertakings, and their self-descriptions. Women's Studies teaches its students to reexamine traditional beliefs, to engage in new kinds of research, and to bring a critical perspective to the practices that shape women's and men's lives. It recognizes as well that race, class, ethnicity, age, and sexual orientation are crucial aspects of women's and men's experiences. Because gender cuts across most areas of knowledge, students can raise similar questions within different disciplines, and by using various methodologies, achieve a deeper understanding of the complexity and wholeness of human experience. The field not only compels us to recognize the problems and possibilities of the world in which we live, but also empowers us to change the world.

The Women's Studies Program offers a major and a minor, which provide an excellent foundation for students who plan on entering professional schools in law, medicine, and business, on pursuing advanced

degrees in women's studies, the humanities and social sciences, or in moving into careers in business, government, teaching, health and social administration, counseling, journalism, and advocacy.

Program of Concentration in Women's Studies

The interdisciplinary major in Women's Studies consists of 36 hours of course work, distributed as follows:

1. Sociology 104 or Women's Studies 150.
2. *Gender in a Global Context*. Sociology 203, Political Science 209, or equivalent.
3. *Feminist Theory*. Three hours, selected from: English 246, French 255, Philosophy 235, Religious Studies 223, or equivalent.
4. *Capstone courses*. Women's Studies 290 and Women's Studies 291.
5. Twenty-one hours of electives, selected from any Women's Studies courses, courses dual-listed in Women's Studies, or courses that meet the approval of the Women's Studies director, not used to satisfy the above requirements. These elective courses may include up to six credit hours for internship research and readings (Women's Studies 288b–c).

Honors Program in Women's Studies

The honors program in Women's Studies is designed to afford exceptional students the opportunity to undertake independent research on a topic in feminist and gender scholarship in consultation with faculty members. The program is open to all women's studies majors with junior standing who have completed at least 21 credit hours of the women's studies major and who have earned a 3.0 cumulative grade point average and a 3.3 grade point average in Women's Studies courses. Students must be approved for acceptance into the honors program by the Women's Studies Advisory Committee. To complete the honors program, students must:

- (a) Submit for approval a short description of the proposed project to the director of Women's Studies, normally by the end of the fall semester of the junior year;
- (b) Complete 6 hours of independent research, WS 298, 299 (Honors Research and Thesis), normally during the senior year;
- (c) Undertake an honors thesis to be completed in the spring of the senior year; and
- (d) Pass an oral examination on the topic of the thesis.

Candidates for Honors in Women's Studies may, with the written permission of the director of the program, substitute one 300-level course in

gender and 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 Studies Program. College regulations governing honors may be found in this catalog under Honors Programs.

Minor in Women's Studies

The minor in Women's Studies consists of 18 hours of course work, distributed as follows:

Core Requirements:

Sociology 104 or Women's Studies 150	3
Sociology 224 or 251, or equivalent	3
History 286 or 287, or equivalent	3

At least 9 hours of courses selected from offerings in Women's Studies, dual-listed with Women's Studies, or that meet the approval of the program's director.

Recommended courses by subject area are as follows:

ANTHROPOLOGY: 206, Medicine, Culture, and the Body (Conklin/Tuchmann).

ART HISTORY: 295, Senior Seminar: Women and Gender in Meso-American Art (Headrick).

COMMUNICATION STUDIES: 115W, Identity and Reason in American Sex Controversies (Clarke); 294.01, Gender Trouble (Sloop); 294.02, Media and the Campaign (Demo); 295, Communicating Gender (Demo).

ENGLISH: 115W, Reading Jane Austen (Dever); 272E, Colonial American Literature (Goudie); 288E, Female Wits, 1660–1800 (Orr); 273G, Captivity in Literature (Goudie).

FRENCH: 210, French/Francophone Cinema (Ramey).

HISTORY: 187, Pornography and Prostitution in History (Crawford); 206, Medicine, Culture, and the Body (Conklin/Tuchmann); 295, Desegregation at Vanderbilt (Felten); 295, Marriage and Its Discontents (Crawford).

PHILOSOPHY: 235, Feminist Philosophy (Perpich).

POLITICAL SCIENCE: 234, Women, Politics, and Development in the Third World (Peterson).

PSYCHOLOGY: 217, Psychology of Women (Manning); 252, Human Sexuality (Smith).

RELIGIOUS STUDIES: 223, Ethics and Feminism (Welch).

SOCIOLOGY: 104, Men and Women in American Society (Steinberg); 224, Women and the Law (Steinberg); 249, American Social Movements (McCammon); 257, Gender, Sexuality and the Body (Carpenter); 294, Special Topics: Race, Gender, and Health (Carpenter).

Women's Studies 150. Images of Women. An introduction to the study of images and roles of women in Western society as reflected primarily in literature and art. Readings and discussions concentrate on modern works that draw for background on Greek and Roman mythology, the Bible, medieval and renaissance materials. No prerequisite. FALL, SPRING. [3] Dicker, Francis, Piepmeier, Stahl.

Women's Studies 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. FALL. [3] Francis.

Women's Studies 239. Medieval Women in Their Own Words. European writers from the late classical period through the Middle Ages. Autobiographies, hymns, fictions in poetry and prose with attention paid to ethnic and linguistic difference, cultural background, religious and philosophical ideas. Focus on political influence, personal relations, health and other life concerns, condition in society, and self-perception as writers. SPRING. [3] Barrett.

Women's Studies 240. 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. FALL. [3] Salisbury.

Women's Studies 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. SPRING. [3] Pitt.

Women's Studies 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. SPRING. [3] (Not currently offered)

Women's Studies 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. FALL. [3] Piepmeier.

Women's Studies 270. Lesbian Studies: Identity, Desire, and Representation. Theory, history, social, psychological, and cultural contexts of lesbians and their lives. Includes heterosexism, homophobia, health, race and class differences and the social construction of lesbian existence. [3] (Not currently offered)

Women's Studies 271. Women at the Margins: German-Jewish Women Writers. (Also listed as German 271) 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] Werner. (Not currently offered)

Women's Studies 288a–288b–288c. Internship. 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 Studies 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 Studies course, and a 2.90 grade point average.

288a. Internship Training. May be taken on a Pass/Fail basis only and must be taken concurrently with 288b. FALL, SPRING. These hours may not be included in the minimum hours required for the Women's Studies major. [Variable credit: 1–9]

288b. Internship Research. FALL, SPRING. [Variable credit: 1–3]

288c. Internship Readings. FALL, SPRING. [Variable credit: 1–3]

Women's Studies 289. Independent Study. A program of reading and research for advanced students in an area of Women's Studies arranged in consultation with an adviser. FALL, SPRING. [Variable credit: 1–3 each semester, not to exceed a total of 6] Staff.

Women's Studies 290. Senior Seminar in Selected Topics. Advanced reading, research, and writing in a particular area of feminist and gender scholarship. Examine theories drawn from a range of disciplines considering interactions and tensions in theory construction. Interpretative structures, historical processes, disciplinary conventions, and interdisciplinary theory construction. Juniors may enroll with permission of instructor. May not be taken more than twice. FALL. [3] Staff.

Women's Studies 291. Senior Research Seminar. Project developed under supervision of Women's Studies faculty. Normally open only to senior majors. SPRING. [3] Staff.

Women's Studies 295. Selected Topics. Seminars or lecture courses devoted to topics in areas of competence of individual instructors, as announced in the *Schedule of Courses*. [3]

Women's Studies 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 Studies required. Open only to honors candidates. [Variable credit: 3–6; may be repeated, not to exceed a total of 6]

Women's Studies 299. Honors Thesis. Open only to seniors in the Women's Studies honors program. [Variable credit: 3–6; may be repeated, not to exceed a total of 6]

Graduate Courses

Women's Studies 301. Gender and Sexuality: Feminist Approaches. [3] Schwarz.

Women's Studies 302. Gender and Pedagogy. [1]



Blair School of Music

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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 degree 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 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 32-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 Southeast. 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 the School. Its members provide private instruction, coach chamber ensembles, conduct brass seminars, and teach orchestral repertoire classes.

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, a MIDI piano lab, a piano technology lab, and two 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 building's total square footage, nearly tripled in the past three years, is 131,000. Building hours are 7 a.m. to 11 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 library houses over 38,000 books and musical scores, 20,000 sound and 1,000 video recordings, many microforms, and subscriptions to over 130 journals. It is equipped with exceptional listening and study facilities, and was expanded dramatically to a total of 8,000 square feet in the recent building expansion.

Classes for the General Student

The Blair School of Music welcomes the general student into its classes and studios. A wide variety 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.

Music courses, including two freshman seminars in music literature, earn Vanderbilt credit. Many fulfill writing, humanities, and social science or history and culture requirements for undergraduates in the College of Arts and Sciences, 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 & Science CPLE, Engineering distribution, or Peabody liberal education core requirements are given. Requirements and the courses which fulfill them differ for each Vanderbilt school. The lists below provide information regarding the core credit, if any, available for each music course. The designations H (Humanities), S (Social science or history/culture) or W (Writing) should be verified in the appropriate School/College section.

Courses of particular interest to the general student are:

Music Composition and Theory

Bach, Brahms, and Bartok	MUSC 119 (H)
Beethoven and the Beatles	MUSC 107 (H)
Choral Arranging	MUSC 223 (H)
Computer Music	MUSC 216 (H)
Fundamentals of Music Theory	MUSC 101
Introduction to Music Theory	MUSC 120a–120 b (H)
Mozart	MUSC 118 (H)
Musical Nationalisms	MUSC 106 (H)
The Romantic Generation	MUSC 105 (H)
Sonata Forms	MUSC 191 (H)
Songwriting and Elements of Music Theory	MUSC 100
Songwriting II	MUSC 102

Music Literature and History

African Music	MUSL 171 (S)
American Music	MUSL 147 (S)
American Popular Music	MUSC 149 (H)
The Bible and Music	MUSL 219 (H)
The Blues	MUSL 151 (H)
Choral Music	MUSL 145 (H)
Country Music	MUSL 152 (H)
Exploring the Film Soundtrack	MUSL 264 (H)
<i>Freshman Seminar:</i>	
Music and Modernism	MUSL 115W (W)

Freshman Seminar:

Shakespeare and Music	MUSL 115W (W)
Introduction to Music Literature	MUSL 140 (H)
Jazz	MUSL 148 (H)
Music and Religion	MUSL 278 (H)
Music, Identity, and Diversity	MUSL 216 (S)
Music in Latin America and the Caribbean	MUSL 250 (S)
Music, the Arts, and Ideas	MUSL 183 (H)
Musical Theatre in America	MUSL 103 (H)
Opera	MUSL 247 (H)
Rock Music	MUSL 153 (H)
The Symphony	MUSL 144 (H)
Women and Music	MUSL 200 (S)
Words and Music	MUSL 218 (H)
World Music	MUSL 160 (S)

Other Courses

The Business of Music	MUSO 100
Computer Recording Technology Seminar	MUSO 102 (H)
Music and Cognition	MUSO 161 (S)

Performance and Ensembles for the General Student

Performance instruction and ensembles are available for university credit. Performance instruction is available in both group and individual settings. Private instruction is offered in all 25 areas, including all orchestral instruments and in piano, organ, guitar, dulcimer, mandolin, saxophone, euphonium, recorder, viola da gamba, fiddle, and voice. Credit is flexible. 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 distribution requirements. For others, performance is elective credit. Group instruction is offered in piano, voice, guitar, recorder, fiddle, and percussion; groups have maximum of six students and earn 1 credit hour. Fiddle is also offered in a class setting.

Ensembles sponsored by the School are open by audition to all members of the University community. Ensembles may be taken for academic credit or on a no-credit (NC) basis. Auditions are held at the beginning of each semester. Audition information can be found on the Blair School of Music website. Primary ensembles include instrumental ensembles, encompassing orchestra, wind ensembles, contemporary ensembles, Chamber Choir, Symphonic Choir, Opera Theatre, and Jazz Ensemble. Course descriptions are given under "Courses of Study" in the Blair sec-

tion of the catalog. All undergraduates registered for instruction at Blair are admitted to the Blair Concert Series free of charge; a complimentary ticket must be obtained in advance, before noon of the performance day.

Music Minors

Students may elect one of three minors: music, music history, or music performance. A handbook for minors is available from the Blair receptionist. Students must plan their studies with Blair advisers Joe Rea Phillips, Sarah Page, or Pamela Schneller. Ms. Page advises students with last names A–G, Mr. Phillips advises students with last names H–M, and Ms. Schneller advises students with last names N–Z.

Music Minor. 24 hours.

Music Theory. 6 hours.

MUSC 120a–120b; or 121–122 and 121e–122e

Music Literature/History. 12 hours.

MUSL 140 or 141

One course chosen from: MUSC 191, MUSC 294, MUSL 115W, 144, 145, 242, 243, 244, 247, 249, 255, and, with approval of department chair, 294.

One course chosen from: MUSL 160, 171, 200, 242, 243, 244, 247, 250, 261, 278, and 294.

One course chosen from: MUSC 191, 294, MUSL 103, 115W, 144, 145, 147, 148, 149, 151, 152, 153, 160, 170, 171, 183, 200, 218, 219, 242, 243, 244, 247, 249, 250, 255, 261, 264, 278, and 294.

Performance. 4 hours.

Individual performance instruction in a single area for at least 4 semesters.

Ensemble 2 hours (2 different semesters).

Participation for two semesters in an appropriate performing ensemble, as assigned, following auditions by a faculty committee.

Music History Minor. 18 hours.

Music Theory. 6 hours.

MUSC 120a–120b; or 121–122 and 121e–122e

Music Literature/History. 12 hours.

MUSL 141,* 242, 243, and 244

*Students who have completed MUSL 140 must substitute another course for MUSL 141, selected from MUSL 144, 145, 147, 148, 151, 152, 153, 160, 170, 171, 183, 200, 218, 247, 249, 250, 255, 261, 264, 278, or 294.

Music Performance Minor. 26 hours.

Music Theory. 6 hours.

MUSC 120a–120b; or 121–122 and 121e–122e

Music Literature/History. 6 hours.

MUSL 140 or 141

One course chosen from MUSL 103, 115W, 144, 145, 147, 148, 149, 150, 151, 152, 153, 160, 170, 171, 183, 200, 218, 219, 242, 243, 244, 247, 249, 250, 255, 261, 264, 278, 294, MUSC 191, and MUSC 294.

Performance. 12 hours.

Individual instruction in a single area 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, with the required 12 hours at a level beyond that minimum. The Blair registrar can provide repertoire information and approval forms.

Ensemble. 2 hours (two different semesters).

Participation in an appropriate performing ensemble, as assigned, following auditions by a faculty committee. Strings, winds, percussion, and harp students must audition for MUSE 101, Instrumental Ensemble. Keyboard, guitar, and voice students must audition for MUSE 101a, Symphonic Choir.

Music as a Second Major

Blair offers a non-professional liberal arts major in music that requires a minimum of 32 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. Students must plan their studies with Blair adviser Professor Carl Smith, coordinator of the program. Information flyers are available from the Blair receptionist. Minimum requirements are as follows:

Music Major (Second Major). 32 hours.

Music Theory. 12 hours.

MUSC 121, 121e, 122, 122e, 220, 221, taken in sequence.

Placement out of 121 would allow the inclusion of other approved theory courses to fulfill the 12-hour requirement. (See MUSC courses under Elective, below.)

Music Literature/History. 12 hours.

MUSL 141,* 242, 243, 244, with MUSL 141 prerequisite to the other courses.

*Students who have completed MUSL 140 must take an additional course instead of MUSL 141, selected from MUSL 144, 145, 147, 148, 150, 151, 152, 153, 160, 170, 171, 183, 200, 218, 247, 249, 250, 255, 261, 264, 278, or 294.

Individual Performance Instruction. 4 hours.

Four 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 4 hours at a level beyond that minimum. Representative repertoire lists reflecting minimum performance standards and required approval forms are available from either the Blair receptionist or Professor Carl Smith, coordinator of the program.

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

Participation in an appropriate performing ensemble, as assigned, following auditions by a faculty committee. String players must audition for orchestra. Winds, percussion, and harp must audition for wind ensemble or orchestra. Keyboard, guitar, and voice must audition for Symphonic Choir.

Elective. *2–3 hours.*

One course in music theory, literature/history, or conducting, chosen from MUSC 191, 222, 223, 224, 225, 294; MUSL 103, 115W, 144, 145, 147, 148, 149, 150, 151, 152, 153, 160, 161, 170, 171, 183, 200, 218, 219, 247, 249, 250, 255, 261, 264, 278, 294; MUSO 161, 261.



The Degree Program

BACHELOR of Music degree programs include 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, classic guitar, saxophone, euphonium, multiple woodwinds, 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. A limited number of students may participate in the musical arts/teacher education program, a five-year curriculum jointly developed with Peabody College, for students interested in earning the Master of Education degree and teacher licensure in addition to the B.Mus. degree.

Liberal arts core requirements include English, the humanities, courses chosen from history or social science, mathematics or natural science, and academic electives. The degree total is 126 credit hours.

Music Core

All Bachelor of Music degree candidates complete a standard core of requirements designed to ensure an intense, yet broadly-based, understanding of the discipline of music. The core consists of 37–39 hours, plus performance instruction.

MUSIC THEORY AND KEYBOARD HARMONY. 18–20 hours

MUSC 121, 121e, 122, 122e, 220, 221, 222

MUSC 131a-131b and 132a-132b (or 133a-133b)

MUSC 123e, 124e (required for majors in performance, composition/theory, and musical arts/teacher education)

MUSIC LITERATURE/HISTORY. 9 hours*

MUSL 242, 243, 244

CONDUCTING. 2 hours

MUSO 261

ENSEMBLE. 8 hours minimum (every semester in residence)

Specific ensemble requirements vary with performance area and are listed below.

Auditions for major ensembles (instrumental ensemble, symphonic choir) are required each semester. Assignment to ensembles is at the discretion of the directors.

*Students must also take MUSL 141, listed under Humanities in the Liberal Arts Core.

INDIVIDUAL PERFORMANCE INSTRUCTION

32 hours (instrumental performance majors) 8 semesters

28 hours (vocal performance majors) 8 semesters

16 hours (musical arts majors) 8 semesters

6 hours (composition/theory majors) 6 semesters in any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice.

Performance instruction and performance class every semester in residence for performance and musical arts majors (all woodwinds, all brass, percussion, all strings, piano, guitar, voice).

RECITAL ATTENDANCE *No credit*

MUSO 108 (every semester in residence except final semester)

Specific requirements are outlined in the Academic Regulations section of the catalog.

Major Area, Minor Area, and Concentration Requirements

Each area has specific ensemble requirements and requires coursework in addition to the core, varying from 2 to 38 hours, as follows:

BRASS PERFORMANCE. *7 hours*

Ensemble: MUSE 101, 101b or 101e (eight semesters), 201L (one semester), and 201c or 201L (one semester). Students may substitute MUSE 206 for 101b or 101e, if assigned.

Note: Horn students may substitute 201w for 201L and 208 for 101b or 101e, if assigned.

Performance: MUSO 110a, 110b, or 111a. (every semester); MUSR 295, 299

Other Music: MUSO 152, 252

COMPOSITION/THEORY. *38 hours*

Department approval required for admission.

Composition/Theory: MUSC 225, 229, 230, 231a–231b, 232a–232d, 299

Ensemble: eight semesters selected with the adviser's approval

Music Electives: 3 hours

Total hours in music: 80 minimum

Liberal Arts: must include one year of French, German, or Italian and 200-level courses in English, art history, and philosophy; a total of 36 hours, rather than 30, in liberal arts.

CONCENTRATION IN COLLABORATIVE ARTS. *15–21 hours*

Literature/History: 247

Performance: MUSP 193 [1 hour], MUSR 299 (1 hour), MUSO 109d every semester

Other Music: MUSO 159, 159c, 159d, 256, 259, 289 (2 hours in vocal coaching or chamber music literature)

Ensemble: MUSE 101a (two semesters), 101f (as apprentice pianist), 201c, 201d, 201e, 201f (vocal), choice of 201e or 201f, and four semesters chosen from 201c, 201d, 201e, 201f

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.

Deadline to declare concentration: December 1 of junior year.

CONCENTRATION IN COMPOSITION. *21 hours.*

Department approval required for admission to this concentration.

Composition/Theory: MUSC 123e, 124e, 230 and 16 hours in 230e

Deadline to declare concentration: December 1 of junior year.

CONCENTRATION IN MUSIC LITERATURE/HISTORY. 25 hours

Literature/History: 9 elective hours (in addition to 9 hours required for the musical arts major)

Liberal Arts: History 100, 101 (formerly 101a–101b), 10 hours of foreign language approved by the department; a total of 37 hours, rather than 30, in liberal arts)

Deadline to declare concentration: December 1 of junior year.

CONCENTRATION IN PEDAGOGY. 16 hours

Other Music: MUSO 161 and either 256, 257, 258, 259, or 289 (in field, 2 hours), and either 266, 267, 268, 269 or 289 (in field, 2 hours), and 271 (2 hours)

Internship: MUSO 281 (6 hours)

Senior Recital: MUSR 299

Liberal Arts: must include Psy 1630 and 2310 (Peabody courses)

Deadline to declare concentration: December 1 of junior year.

CONCENTRATION IN THEORY. 21 hours

Department approval required for admission to this concentration.

Composition/Theory: MUSC 123e, 124e, 230, and 16 hours in 227 or 294

Deadline to declare concentration: December 1 of junior year.

GUITAR PERFORMANCE. 6 hours

Ensemble: MUSE 101a (four semesters), 204 (one semester), and 201c or 204 (three semesters)

Performance: MUSO 109e (every semester), MUSR 295, 299

Other Music: MUSO 258, 268

HARP PERFORMANCE. 3 hours

Ensemble: MUSE 101, 101b, or 101e (six semesters), 201c or 209 (two semesters)

Performance: MUSR 295, 299

Other Music: MUSO 254a

MINOR INSTRUMENT. 10 hours

Ensemble: participation on minor instrument for two semesters in an appropriate ensemble, as assigned (2 hours)

Performance: four semesters in a second performance area (any orchestral instrument, piano, organ, harpsichord, guitar, saxophone, euphonium, or voice) at a level of proficiency represented by L-level registration. Representative repertoire lists reflecting minimum performance standards and required approval forms are available from the Blair registrar. Consent of instructor required (8 hours)

Deadline to declare minor instrument: December 1 of junior year.

MULTIPLE WOODWINDS PERFORMANCE. 4–5 hours

Ensemble: MUSE 101, 101b, or 101e (eight semesters), 201c, 201W, or 207 (two semesters).

Must include at least three semesters in ensemble on secondary instrument. Students may substitute MUSE 208 for 101, 101b, or 101e, if assigned.

Performance: MUSR 299. Must include performance on three woodwind instruments.

Individual instruction requirements, Plans A and B, are outlined in *Beginning at Blair*, the school's handbook for freshmen. Performance class every semester of study on primary or secondary instrument.

Other Music: MUSO 151; 251 strongly recommended

MUSICAL ARTS. 22 hours

Composition/Theory: MUSC 223, 224, 225, 230, or 294 (2-3 hours)

Ensemble:

Strings—five semesters orchestra and three semesters ensemble of choice.

Harp—four semesters orchestra *or* wind ensemble and four semesters ensemble of choice.

Winds, percussion—five semesters wind ensemble or orchestra and three semesters ensemble of choice

Keyboard—two semesters Symphonic Choir and six semesters ensemble of choice

Guitar—four semesters Symphonic Choir and four semesters ensemble of choice.

Voice—eight semesters Symphonic Choir or Chamber Choir

Literature/History: 9 hours chosen from MUSL 103, 114, 115W*, 144, 145, 147, 148, 149, 150, 151, 152, 153, 160, 170, 171, 183, 200, 218, 219, 247, 249, 250, 255, 261, 264, 278, 289, 294, 298, 299a, 299b

Performance: performance class every semester if offered (MUSO 109a, 109b, 109c, 109d, 109e, 109f, 109g, 109L, 110a, 110b, 110d, 110e, 110f, 110g, 111a)

Music Electives: 12–13 hours

Total hours in music: *80 minimum*

MUSICAL ARTS/TEACHER EDUCATION, INSTRUMENTAL. 38 hours

Composition/Theory: MUSC 224, 230

Ensemble: 6 semesters large ensemble (MUSE 101, 101b, 101e, 101a) and 2 semesters small ensemble. Instrumentalists must have experience in orchestra, wind ensemble, jazz ensemble (as appropriate), and chamber music. Wind instrumentalists and percussionists must participate a minimum of 2 semesters in marching band, be involved in preparing the annual student show, and demonstrate knowledge of fundamental marching band techniques.

Literature/History: MUSL 147, 160, and either 183 or 200

Performance: Performance class every semester. Secondary instrument(s) four 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). Intro to Voice MUSP 103a. 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, 250d. EDUC 2040, and two courses chosen from EDUC 2120, 2270, PSY (Peabody) 2320, and ENED 2100, 2920.

MUSICAL ARTS/TEACHER EDUCATION, VOCAL/GENERAL. 36 hours

Composition/Theory: MUSC 223, 224, 230

Ensemble: 6 semesters large ensemble (MUSE 101, 101a, 101b, 101e) and 2 semesters small ensemble. Pianists, vocalists, and guitarists must have experience accompanying. All students must have ensemble experience on their secondary instrument.

Literature/History: MUSL 147, 160, and either 183 or 200

Performance: performance class every semester if offered. Secondary instrument 4 semesters (voice for pianists and organists, piano for singers, voice or piano for guitarists or other instrumentalists). Intro to Voice MUSP 103a (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: Intro to Classroom Instruments MUST 105; Practica in Music Teaching MUST 250a, 250b, 250c, 250d. EDUC 1020, 2040, and two courses chosen from EDUC 2120, 2270, PSY (Peabody) 2320, and ENED 2100, 2920..

* All courses numbered 115 or 115W are freshman seminars with limited enrollment.

ORGAN PERFORMANCE. 6 hours

Ensemble: MUSE 101a (two semesters), 201c, 201d, or 201f (two semesters—must include vocal accompanying), and ensemble of choice (4 semesters).

Performance: MUSR 295, 299

Other music: MUSO 257, 267

PERCUSSION PERFORMANCE. 8 hours

Ensemble: MUSE 101, 101b, or 101e (eight semesters) and 201c or 210 (four semesters)

Performance: MUSO 110g (every semester), MUSR 295, 299

Other Music: MUSO 153, 253a or 253b

PIANO PERFORMANCE. 6 hours

Ensemble: MUSE 101a (two semesters), 201c or 201e (one semester), 201f (one semester), 201c, 201e, or 201f (two semesters), and ensemble of choice (two semesters)

Performance: MUSO 109d (every semester), MUSR 295, 299

Other Music: MUSO 256, 266

STRING PERFORMANCE. 5–6 hours

Ensemble: MUSE 101 or 101b (eight semesters); 201g (one semester, except double bass majors); 201c or 201e or 201g (two semesters)

Performance: MUSO 109b and 111c or 111d (violin majors, every semester); 109g (viola majors, every semester); 109c (cello majors, every semester); 109L (bass majors, every semester); MUSR 295, 299

Other Music: MUSO 254a

VOCAL PERFORMANCE. 11 hours

Ensemble: MUSE 101a or 201a (eight semesters)

Performance: MUSP 186 (two semesters) or 102a and 186 (one semester); MUSO 109f (every semester), MUSR 295, 299

Other Music: MUSO 159, 159c–159d, 259, 269

WOODWIND PERFORMANCE. 6 hours

Ensemble: MUSE 101, 101b, or 101e (eight semesters); MUSE 201c or 221W (two semesters). Students may substitute MUSE 208 for 101, 101b, or 101e, if assigned.

Performance: MUSO 109a (flute majors, every semester); 110d (oboe majors, every semester); 110e (bassoon majors, every semester); 110f (clarinet majors, every semester); 110L (saxophone majors, every semester); MUSR 295, 299

Other Music: MUSO 151, 251

Liberal Arts Core

The liberal arts requirements are intended to ensure proficiency in the use of the English language and a broadly based liberal arts background. The curriculum, which provides maximum flexibility for each student, requires a minimum of 30 hours for performance or musical arts majors, 36 hours for composition/theory majors. 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 CPLE) 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.

English/Writing (6 hours)

Students must complete one W course during the freshman year. Two W courses chosen from the English department may also satisfy humanities requirements. A score of 4 or 5 on the College Board English Advanced Placement Examination earns 6 hours credit, fulfilling the English/Writing requirement. A score of 760 or more on the SAT II Writing Test fulfills the English/Writing requirement, but earns no credit.

For composition/theory majors, a 200-level English course is required regardless of SAT scores.

For musical arts/teacher education majors, a philosophy, religious studies, or art history W course is required.

Composition: English 100W.

A score of 560 or more on the SAT II Writing Test exempts English 100W, allowing other courses to fulfill the 6-hour requirement.

Electives from the following:

English: all courses

Communication Studies: 100, 101

Music literature/history: 115W* (freshman seminar in Music and Modernism or Shakespeare and Music)

Writing courses in any discipline, designated by W in the course number

Humanities (9 hours)

MUSL 141. Students should complete this required course during the freshman year.

For composition/theory majors, 15 hours minimum, including one year of French, German, or Italian; a 200-level course in art history; and a 200-level course in philosophy.

For teacher education track students, requirements are fulfilled by art history course or philosophy W course, MUSL 160, and either MUSL 183 or 200.

For vocal performance majors, 10 hours, chosen from French, German, and Italian.

Electives from the following:

American and Southern Studies: 210

Anthropology: 130, 226, 255, 256

Arabic: all courses

Art History: all courses (art studio courses excluded)

Catalan: all courses

Chinese: all courses

Classics: 115,* 115W,* 130, 146, 150, 203, 204, 205, 206, 210, 217, 218, 231, 232

Communication: Studies 201, 222

Comparative Literature: all courses

East Asian Studies: 133, 211

English: 104W, 105W, 106W, 109W, 112W, 208a–208b, 209a–209b, 210, 211, 212, 214a–214b, 215, 221, 224, 232a–232b, 233, 235, 250, 253, 254a–254b, 256, 257, 258, 260, 263, 264, 268a–268b, 272, 276, 277, 278, 282, 285, 286a–286b

Film Studies: all courses

French: all courses

German: all courses except 238 and 241

* All courses numbered 115 or 115W are freshman seminars with limited enrollment.

Greek: all courses
 Hebrew: all courses
 Humanities: all courses
 Italian: all courses (no knowledge of the language required for 224)
 Japanese: all courses
 Jewish Studies: all courses
 Latin: all courses
 Music Literature/History: 115W,* 160, 183, 200, 278
 Philosophy: all courses
 Portuguese: all courses (no knowledge of the language required for 293)
 Religious Studies or Divinity School: all courses
 Russian: all courses (no knowledge of the language required for 171, 172, 221, 222, 233, 234)
 Spanish: all courses (no knowledge of the language required for 293)
 Theatre: 100, 115,* 115W,* 201, 202, 203, 204, 232, 271, 276, 280, and MUSL 103
 Women's Studies: 259, 271

History, Social Science (3 hours)

For teacher education track students, 6 hours, including one course chosen from HIST 170, 171, 173, 176, 177, 267, 271, 272, 274, 275, 276, 277, 278, 279, or 280, and an "international" social science course, the study of a culture other than your own (see recommended courses under "International" listings below).

HISTORY.

History: all courses
 Music Literature/History: 147, 170, 171, 250, 261

SOCIAL SCIENCE.

African American Studies: 101 (fulfills "international" for M.A.s)
 Anthropology: all courses
 Communication Studies: 210, 220, 221, 228, 240, 241
 East Asian Studies: 240 (fulfills "international" for M.A.s)
 Economics: 100, 101, 115,* 115W*
 Human and Organizational Development (Peabody): 1000, 1100, 1200, 1700, 2100, 2240
 Interdisciplinary Studies: 201
 Music: MUSO 161
 Political Science: all courses
 Psychology (A&S): all courses
 Psychology (Peabody): 1200, 1300, 1500, 1600, 1630, 1700, 1750, 2230, 2250, 2310; 2320; SPED 1010; EDUC 1020
 Russian: 171, 172 (no knowledge of Russian language required)
 Sociology: all courses
 Women's Studies: 240, 243, 270

INTERNATIONAL SOCIAL SCIENCE.

Anthropology: 130, 210, 214, 237, 247
 Art History: 130, 200, 252, 253, 254
 History: any non-American, non-European course
 Political Science: 102, 210, 211, 212, 214, 215, 216, 217, 219, 221, 225, 227, 228
 Religious Studies: 112, 113, 130, 132, 133
 Sociology: 101, 102, 201, 220, 242, 255, 265, 277

* All courses numbered 115 or 115W are freshman seminars with limited enrollment.

Mathematics, Natural Science (3 hours)

Students who score below 520 on the SAT I, Quantitative, or below 20 on ACT Math Sub-test, must take MATH 127a or 133.

For teacher education track students, 7 hours, including MATH 127a or Psychology 2101 (Peabody) and a science course, including a lab.

MATHEMATICS.

Economics: 150

Mathematics: all courses

Psychology (Peabody): 2101

NATURAL SCIENCE.

Astronomy: all courses

Biological Sciences: all courses

Biology: all courses

Chemistry: all courses

Geology: all courses except 205

History: 202, 204, 206

Molecular Biology: all courses

Neuroscience: 201, 255

Physics: all courses

Psychology: 201

Religious Studies: 102, 202, 241

Academic Electives (9 hours)

For voice majors, 5 hours.

For composition/theory majors, 5–9 hours, to complete 36 hours in liberal arts.

For musical arts/teacher education majors, 6 hours, specifically Education 1020 and Special Education 1010.

May include any course listed in the Liberal Arts Core, all courses in the non-music disciplines listed in the Liberal Arts Core (excluding art studio, theatre tech or acting, and education), courses in business administration, computer music, computer science, engineering science, European studies, financial economics, any language, Latin American studies, managerial studies; in the Peabody College areas of human and organizational development, or psychology and human development; and in the Divinity School

Free Electives (sufficient to complete 126 hours)

Any course in any Vanderbilt school.

Sample Curriculum Plans

Performance Major

Programs vary with departments, since specific requirements differ. Curriculum plans for each performance area are provided in *Beginning at Blair*, the school's handbook for new students.

		Semester hours	
		FALL	SPRING
FRESHMAN YEAR			
MUSC 121, 122	Music Theory I and II	2	2
MUSC 121e, 122e	Ear Training and Sightsinging I and II	1	1
MUSC 131a–131b	Keyboard Harmony I and II	1	1
MUSE	Ensemble	1	1
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSL 141	Survey of Music Literature	3	–
MUSL 242	Music of the Middle Ages and Renaissance	–	3
MUSR	Performance Instruction	4	4
	English/Writing	3	3
		15	15
SOPHOMORE YEAR			
MUSC 123e, 124e	Ear Training and Sightsinging III and IV	1	1
MUSC 132a–132b	Keyboard Harmony III and IV	1	1
MUSC 220, 221	Music Theory III and IV	3	3
MUSE	Ensemble	1	1
MUSL 243	Music of the Baroque and Classic Eras	3	–
MUSL 244	Music of the Romantic and Modern Eras	–	3
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSR	Performance Instruction	4	4
	Liberal Arts	3	3
		16	16
JUNIOR YEAR			
MUSC 222	Theory V	2	–
MUSE	Ensemble	1	1
MUSE 201	Chamber Music	–	1
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSO	Orchestral Repertoire/Instrument Literature	1	1
MUSO 261	Conducting	2	–
MUSR	Performance Instruction	4	4
MUSR 295	Junior Recital	–	1
	Liberal Arts	6	6
	Free Electives	–	2
		16	16
SENIOR YEAR			
MUSE	Ensemble	1	1
MUSE 201	Chamber Music	–	1
MUSO 108	Recital Attendance	0	–
MUSO 109	Performance Class	0	0
MUSR	Performance Instruction	4	4
MUSR 299	Senior Recital	–	1
	Liberal Arts	3	–
	Free Electives	8	9
		16	16
	Total hours:	126	126

Composition/Theory Major

		Semester hours	
		FALL	SPRING
FRESHMAN YEAR			
MUSC 121, 122	Music Theory I and II	2	2
MUSC 121e, 122e	Ear Training and Sightsinging I and II	1	1
MUSC 131a–131b	Keyboard Harmony I and II	1	1
MUSC 230	Introduction to Composition	–	3
MUSE	Ensemble	1	1
MUSL 141	Survey of Music Literature	3	–
MUSL 242	Music of the Middle Ages and Renaissance	–	3
MUSO 108	Recital Attendance	0	0
MUSP	Performance Instruction	1	1
	English/Writing	3	–
	Liberal Arts	3	3
		15	15
SOPHOMORE YEAR			
MUSC 123e, 124e	Ear Training and Sightsinging III and IV	1	1
MUSC 220, 221	Music Theory III and IV	3	3
MUSC 132a–132b	Keyboard Harmony III and IV	1	1
MUSC 231a–231b	Composition	3	3
MUSE	Ensemble	1	1
MUSL 243	Music of the Baroque and Classic Eras	3	–
MUSL 244	Music of the Romantic and Modern Eras	–	3
MUSO 108	Recital Attendance	0	0
MUSP	Performance Instruction	1	1
	English/Writing	3	–
	Liberal Arts	–	3
		16	16
JUNIOR YEAR			
MUSC 222	Music Theory V	2	–
MUSC 225	Seminar in Advanced Analysis	–	2
MUSC 232a–232b	Advanced Composition	4	4
MUSE	Ensemble	1	1
MUSO 108	Recital Attendance	0	0
MUSO 261	Conducting	2	–
	Music Electives	–	3
	Liberal Arts	6	2
	Free Electives	1	4
		16	16
SENIOR YEAR			
MUSC 229	Senior Thesis	1	–
MUSC 232c–232d	Advanced Composition	4	4
MUSC 299	Senior Composition Recital	–	1
MUSE	Ensemble	1	1
MUSO 108	Recital Attendance	0	–
MUSP	Performance Instruction	1	1
	Foreign Language	5	5
	Free Electives	4	4
		16	16
	Total Hours:	16	126

Musical Arts Major

Optional concentrations in composition, literature/history, pedagogy, and theory will affect the outline. Curriculum plans with each of these added to the basic musical arts requirements are provided in *Beginning at Blair*, the school's handbook for new students.

		Semester Hours	
		FALL	SPRING
FRESHMAN YEAR			
MUSC 121, 122	Music Theory I and II	2	2
MUSC 121e, 122e	Ear Training and Sight-singing I and II	1	1
MUSC 131a–131b	Keyboard Harmony I and II	1	1
MUSE	Ensemble	1	1
MUSL 141	Survey of Music Literature	3	–
MUSL 242	Music of the Middle Ages and Renaissance	–	3
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSP 1–L	Performance Instruction	2	2
	English/Writing	3	3
	Liberal Arts	3	3
		16	16
SOPHOMORE YEAR			
MUSC 132a–132b	Keyboard Harmony III and IV	1	1
MUSC 220, 221	Music Theory III and IV	3	3
MUSE	Ensemble	1	1
MUSL 243	Music of the Baroque and Classic Eras	3	–
MUSL 244	Music of the Romantic and Modern Eras	–	3
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSP 1–L	Performance Instruction	2	2
	Liberal Arts	6	6
		16	16
JUNIOR YEAR			
MUSC 222	Music Theory V	2	–
MUSC	Composition or Advanced Theory Elective	–	2
MUSE	Ensemble	1	1
MUSL	Music Literature/History Electives	3	3
MUSO 108	Recital Attendance	0	0
MUSO 109	Performance Class	0	0
MUSO 261	Conducting	2	–
MUSP 2–L	Performance Instruction	2	2
	Music Electives	3	3
	Liberal Arts	3	–
	Free Electives	–	5
		16	16

SENIOR YEAR		Semester Hours	
		FALL	SPRING
MUSE	Ensemble	1	1
MUSL	Music Literature/History Elective	3	–
MUSO 108	Recital Attendance	0	–
MUSO 109	Performance Class	0	0
MUSP 2–L	Performance Instruction	2	2
	Music Electives	3	4
	Free Electives	6	8
		15	15
Total hours:			126

Musical Arts/Teacher Education Major (5 year M.Ed.) *

FRESHMAN YEAR

MUSC 121,122	Music Theory I and II	2	2
MUSC 121e, 122e	Ear Training and Sightsinging I and II	1	1
MUSC 131a, 131b	Keyboard Harmony I and II	1	1
MUSE	Ensemble	1	1
MUSL 141	Survey of Music Literature	–	3
MUSO 108	Recitals	0	0
MUSO 109	Performance Class	0	0
MUSP 103a	Introduction to Voice I (excluding voice majors)	–	1
MUSP 1–L	Performance Instruction	2	2
	Liberal Arts [English and Math; Intro to Exceptionality]	6	3
EDUC 1020	Society, School & Teacher	3	–
MUST 250a	Practicum I	–	1
		16	15

SOPHOMORE YEAR

MUSC 123e, 124e	Ear Training and Sightsinging III and IV	1	1
MUSC 132a, 132b	Keyboard Harmony III and IV	1	1
MUSC 220, 221	Music Theory III and IV	3	3
MUSE	Ensemble	1	1
MUSL 242	Music of the Middle Ages and Renaissance	3	–
MUSL 243	Music of the Baroque and Classic Eras	–	3
MUSO 108	Recitals	0	0
MUSO 109	Performance Class	0	0
MUSO 159	Diction for Singers (voice majors only)	1	0
MUSP 1–L	Performance Instruction	2	2
	Classroom Instruments	–	1
	Liberal Arts [Science, U.S. History]	4	3
MUST 250b	Practicum II	–	1
		16	16

JUNIOR YEAR

JUNIOR YEAR		Semester Hours	
		FALL	SPRING
MUSC 222	Music Theory V	2	–
MUSC 224	Orchestration	3	–
MUSC 230	Introduction to Composition	–	3
MUSE	Ensemble	1	1
MUSL 244	Music of the Romantic and Modern Eras	3	–

MUSL	Music Literature/History Elective**	–	3
MUSO 108	Recitals	0	0
MUSO 109	Performance Class	0	0
MUSO 261; 262, 263	Conducting; Instrumental or Choral Conducting	2	2
MUSP 2--L	Performance Instruction	2	2
	Secondary Instrument	1	1
	Philosophy W or Fine Arts W (writing course)	–	3
	Free Electives	2	–
MUST 250c	Practicum III	–	1
		16	16
SENIOR YEAR			
MUSE	Ensemble	1	1
MUSL	Music Literature/History Elective**	3	3
MUSO 108	Recitals	0	–
MUSO 109	Performance Class	0	0
MUSP 2--L	Individual Performance Instruction	2	2
MUSR 299	Senior Recital	1	–
EDUC 2040, 2120	Introduction to Classroom Technologies; and Parents and Their Developing Children	4	–
	Secondary Instrument	1	1
	Liberal Arts [International Social Science; Licensure Courses***]	3	6
	Class Instruments or free elective	1	1
MUST 250d	Practicum IV	–	1
		16	15
	Total Hours:		126

* Programs vary somewhat for instrumental or vocal/general track. Curriculum plans for each track are provided in *Beginning at Blair*, the school's handbook for new students.

** Music literature/history electives: MUSL 147, 160, and either 183 or 200 (American Music; World Music; and choice of Music, the Arts, and Ideas; or Women and Music).

***Two courses chosen from EDUC 2120, 2270; ENED 2100, 2920; PSY 2320.

Note: Ensemble experience must include both large and small ensembles and varies according to specific track (i.e., vocal/general or instrumental).

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 musical arts/teacher education track for four years, and the Master of Education (M.Ed.) degree to complete professional education requirements. During the senior 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 or vocal/general music. 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) every year,

with two student teaching opportunities in the spring semester of the master's degree work. Practica constitute a wide variety of experiences, including public school, private school, and Blair's pre-collegiate programs such as Suzuki strings, Children's Chorus program, and the 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.

Sophomore Review

All students admitted to this program at matriculation must be formally continued through a process called Sophomore Review. Criteria for this review are listed below. Students not approved can complete the general musical arts degree.

Specific Criteria

1. An interview of the candidate by the student's faculty adviser and an in-service classroom music teacher.
2. Passing scores on the Pre-Professional Skills Test or a minimum score of 1020 on the SAT or 22 on the ACT.
3. A minimum cumulative grade point average of 2.500.
4. Successful completion (C- or better) of at least two of the required professional education courses.
5. A minimum grade of C- in all professional education courses; and
6. A minimum grade of C- in two of the following: English 100W, 104W, 105W, 106W, 112W, 120W, MUSL 141.

General Criteria

These criteria rest on the professional judgment of appropriate faculty members, who are polled following the student's application for Sophomore 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 Sophomore Review

Students apply for continuation in the teacher education program (Sophomore Review) through the coordinator of the program.

Applications must be submitted in either the fall or spring semester of the sophomore year. Deadlines for submitting applications for Sophomore Review are 1 October and 1 February.

Admission to the Master's Degree

During the senior 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 1 March.

Fifth Year Curriculum

SUMMER		Semester hours
EDUC 3050	Social/Philosophical Aspects of 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 2320	Teaching for Understanding and Academic Literacy	2
EDUC 2330	Practicum	1
EDUC 3890	Independent Study in Music	2
MUST 320/330	Methods and Materials in Teaching Music, K-6 and 7-12	6
SPRING		
EDUC 3003	PreK-12 Student Teaching in Music	6
EDUC 3004	Student Teaching Seminar in Music	1
		Total Hours: 30

Admission to Student Teaching

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 410 Wyatt Center for Education. 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 410 Wyatt Center for Education. 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 or vocal/general music is approved by the National Association of Schools of Music (NASM).



B



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 the school.

The Adult Program

Blair offers to adults individual instruction in orchestral instruments, piano, organ, guitar, harp, saxophone, euphonium, recorder, viola da gamba, harpsichord, fiddle, dulcimer, voice, and composition. Group instruction is available in piano, guitar, recorder, percussion, fiddle, mandolin, and voice.

Classes are offered in basic musicianship, music theory and ear training, music literature and history (twenty courses), violin orchestral repertory, music business, songwriting, and Alexander Technique. Ensembles open to adults include the Vanderbilt Community Chorus, Vanderbilt Opera Theatre, guitar ensemble, saxophone ensemble, trombone ensemble, tuba ensemble, percussion ensemble, fiddle ensemble, and chamber music.

The Pre-College Program

Blair offers individual instruction in orchestral instruments and in piano, organ, guitar, harp, saxophone, euphonium, recorder, viola da gamba, harpsichord, fiddle, dulcimer, and voice. Group instruction is available in piano, guitar, fiddle, mandolin, recorder, voice, and (for young children) Kindermusik for ages eighteen months to three and a half years, and New Horizons for ages four to six. Instruction using the Suzuki method is offered in violin, viola, and cello.

Class instruction includes elements of music, musicianship, music theory and ear training, music literature, and violin orchestral repertory.

Ensemble training is offered in the four orchestras of the Nashville Youth Orchestra Program (Curb Youth Symphony, Nashville Youth Repertory Orchestra, Youth String Orchestra, and Suzuki Reading Orchestra), six choruses of the Blair Children's Chorus Program (Concert Choir, Young Men's Chorus, Blair Choristers, Young Singers of Blair, Boy-choir of Nashville at Blair, and Preparatory Chorus), Blair Suzuki Players, guitar ensemble, and chamber music.

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 College Preparatory Certificate upon graduation. A variety of scholarships, for which students may audition, are awarded each year to outstanding pre-college students by the school, the Blair Guild, and by several donors. Students in many area high schools 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.

The Blair Concert Series

The Blair Concert Series offers solo and chamber music performance to the University community and the city of Nashville, always focussing on the Blair faculty, resident ensembles, and soloists. Complimentary tickets are available *in advance* to anyone studying at Blair who presents a Blair identification card; other students pay half the general admission price.

Faculty members also present evening candlelight concerts for the University Club of Nashville. Numerous faculty recitals and other special programs are presented throughout the year. Weekly student recitals, held each Thursday at 3:10 p.m., are free and open to the public, as are all other student recitals, including junior and senior solo recitals and senior composition recitals. More than 120 concerts are presented at the school each year.

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 for 2004/2005 are Michael Torke, November 5–7, and Joan Tower, January 23–30. Torke is associate composer of the Royal Scottish National Orchestra and has been commissioned by the Atlanta Symphony, New York City Opera, British Television, and the Disney Company, and performed by the New York Philharmonic, Boston Pops, New York City Ballet, and Netherlands Radio Philharmonic and Choir. His music is recorded on Sony and Decca. Joan Tower, best known for "Fanfare for the Uncommon Woman," has received numerous awards and fellowships and commissions from Chicago, Houston, Pittsburgh, St. Louis Symphonies, New York Philharmonic, and Lincoln Center Chamber Society. Her works are performed throughout the world, and she is recorded on Delos, Koch International, and d'Note Records.

The Conversations Series features occasional informal on-stage interviews with leading musical artists from both classical and popular fields. The series was inaugurated in 1995 with the late guitarist Chet Atkins. Guests since then have included violinist Joshua Bell; fiddler Mark O'Connor; pianist Awadagin Pratt; singer/songwriters Amy Grant, Marty Stewart, Steve Earle, Beth Nielsen Chapman, Randy Newman, Mike Reid; guitarist Mark Knopfler, and the legendary country artist, Eddy Arnold.

The John F. Sawyer Symposium on *Music and the Arts* was established to honor John F. (Del) Sawyer, founding director and former dean of the Blair School of Music. The inaugural event in 1996 featured a seminar and master class with Sawyer's mentor, master trumpeter and legendary teacher William Vacchiano.

Academic Regulations

1

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 faculty 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.

October Break

The University's fall break, October 18–19 (Monday–Tuesday), requires an adjustment to the Blair School calendar because of the large number of once-weekly classes and lessons. Accordingly, all Monday and Tuesday classes and lessons that week will meet on Wednesday and Thursday (October 20–21) instead, and the those that would normally meet on Wednesday and Thursday will not meet.

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. 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, in residence at the Blair School. "In residence" is defined as enrolled for a minimum of 12 hours.

B

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.

Work at Another Institution

Pre-Freshman Work. Credit for pre-freshman college work may be given, subject to evaluation by the registrar and approval of the 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.

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 registrar, provide course descriptions, and obtain authorization in advance. Summer 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.

Transfer Students

Transfer applicants must comply with University standards (see the chapter on Admission.) 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 some 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 at Blair, and credit for non-music courses must be approved by the appropriate Vanderbilt department. Work transferred from another institution will not carry with it a grade point average; grades will show on the transcript but are not calculated in the Vanderbilt grade point average. Transfer students must complete at least half the credit required for the degree, or 63 hours, at the Blair School.

Registration

Registration is available to entering freshmen in June during Summer Academic Orientation or by mail. Other students register on dates specified each semester in the University Calendar. Packets are distributed to students' Blair mailboxes by the Blair registrar. Conferences with faculty advisers are required before students may register via computer. Detailed information on registration using the computerized registration system is printed in the *Schedule of Courses*. Returning students who fail to register by the date specified in the University calendar (usually early in May for the fall semester or mid-November for spring semester) are charged a \$30 late registration fee.

Prior to registration, students should refer to the sample curriculum plans in *Beginning at Blair*, the school's handbook for new students. Records should be checked regarding progress toward completing the following:

1. Music core
2. Liberal arts core
3. Additional major area requirements

A student whose course requests are denied (class full or cancelled) may select alternate courses when notified of open registration, with the assistance of the Blair registrar if needed.

Change of Course

Course changes may be made during Registration 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 prior to the deadline for withdrawal published in the University Calendar (usually Friday of the week after mid-semester). 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: outstanding
- 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

After the freshman year, students in good standing may take free elective courses in which they request a grade of *Pass* or *Fail*. Only one course (or 3 hours) per semester and a total of 18 hours towards the 126-hour degree total may be taken on a Pass-Fail basis. The 18-hour maximum includes any courses offered only with Pass-Fail grading and any hours in which credit is earned by departmental examination and thus graded as *Pass*. Liberal arts core courses may not be taken on a Pass-Fail basis.

Students must file for the Pass-Fail option using OASIS, the computerized registration system, before the end of the official Change Period, usually the first week of classes. Students may change from a Pass-Fail basis to a letter grade basis before the deadline for withdrawal published in the *University Calendar*, generally Friday of the week after mid-semester; the Blair School registrar can assist.

Students electing the Pass-Fail option must meet all course requirements and are graded in the usual way. Instructors are not informed of the names of students enrolled on a Pass-Fail basis. At the end of the semester, the registrar records grades of D- or above as *Pass*. Grades of *Pass* are not calculated in a student's grade point average; failing grades are.

Students electing coursework on a Pass-Fail basis need not be enrolled for 12 graded hours, but a student enrolled for fewer than 12 graded hours is not eligible for the Dean's List.

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*). These are issued as a matter of information and warning. Deficiencies do not show on transcripts, but copies are sent to faculty advisers and to the 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.

M: Missed Final Examination

The grade *M* may be requested by a student absent from the final examination, but the grade *F* is given if a student could not have passed the course regardless of the examination score. To receive the grade *M*, the student must complete an authorization form available from the Blair registrar and present a written excuse to the instructor and the associate dean for authorization. A date by which the examination will be completed is scheduled jointly by the student and the instructor. A student who defaults on the final examination receives a score of zero. The grade *M* is not calculated in a student's grade point average, but a student who receives the grade *M* is not eligible for the Dean's List.

I: Incomplete

In the event that course work or quizzes are not completed by the last class day of the semester, the grade *I* may be requested by a student if the incomplete work is due to illness or circumstances beyond the student's control. With the instructor's permission and the approval of the associate dean, a student may be given an extension for missing work. Autho-

rization forms are available from and must be filed with the Blair registrar before the grade *I* is given. A date by which the work must be completed is agreed upon by the student and the instructor. Work not completed by the extension date receives a zero. The grade *I* is not calculated in a student's grade point average, but a student who receives the grade *I* is not eligible for the Dean's List.

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

Blair Courses. Regularly enrolled Blair degree students who wish to audit Blair courses need only obtain the consent of the instructor. The transcript will show no record of the audit unless the student registers for the course in an audit status with the Blair registrar. Students from other schools of the University must register to audit Blair courses. The audit will be indicated on the student's record with no grade. Auditing students do not participate in class discussion and are not evaluated. Auditing of individual or group performance instruction is not permitted, but students may audit performing ensembles with the instructor's consent.

Courses in Another School. A Blair student who audits a course in another school of the University must register for audit. The audit will be indicated on the student's record with an "Au" for audit and will be considered, and paid for, as part of the regular load. Audit status in a course may affect full-time student status, since audited hours do not count as official "hours enrolled."

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 and portions of final examinations, 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 in the *Schedule of Courses*. 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 Grading System).

Grade Reports

Grade reports and faculty critiques of performance examinations will be sent to students as soon as possible at the end of each semester. Grade reports are sent to parents of those students who are dependents of their parents or who have authorized such reports. 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 Blair registrar.

Academic Standards

Class Standing

To qualify for sophomore standing, a student must complete a minimum of 24 hours with a grade point average of 1.8.

To qualify for junior standing, a student must complete a minimum of 54 hours with a grade point average of 1.9.

To qualify for senior standing, a student must complete a minimum of 86 hours with a grade point average of 2.0

Students who fail to qualify for the appropriate class standing within two semesters are placed on probation. Students on probation must qualify for class standing in one additional semester or risk being dropped from the University.

Academic Probation

Freshmen are placed on academic probation if they do not complete one writing course or if their grade point averages are below 1.8 overall or 2.0 in music. Other students are placed on academic probation if they fail to qualify for class standing or if their semester grade point averages fall below 1.8 overall or 2.0 in music. 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 program in the Learning Center. 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.

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

A degree audit report is prepared by the Blair registrar and included in each student's registration packet during the spring semester of the junior year, showing total hours earned, degree requirements completed, and those still to be met. Students should examine these reports 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 and the Dean. Grading is on a Pass-Fail basis. The maximum of 18 hours toward the degree graded as Pass includes credit earned by examination.

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.

A \$50 fee is charged for administering the examination unless credit earned by examination exceeds the normal 18-hour maximum load, in which case tuition must be paid at the hourly rate for those hours in excess of 18, and the examination fee is waived.

Senior Re-examination

Candidates for graduation who fail one exam and therefore one course in the final semester of the senior year are allowed one re-examination,

provided the course failed would prevent the student's graduation and provided the student could pass the course by passing the re-examination. The re-examination is given after all grades for the senior year have been received by the registrar. Students passing a senior re-examination receive a D- in the course.

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. 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, tape, or some physical manifestation of the project should be retained by the instructor. Independent Study projects proposed by students in the College of Arts and Science must be approved by Dean Jane Landers.

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 Vanderbilt Career Center assists students interested in internship opportunities in the music industry and elsewhere; there are opportunities in many states of the U.S. and also abroad, both during the academic year and in the summer. A student serving as an intern may develop an Independent Study project as a corollary if credit is desired. The project must be consistent with the regulations for any Independent Study.

Solo Recitals

Pre-Recital Hearing

Any student who wishes to give a recital in the Turner Recital Hall must pass a hearing, held at least three weeks before the recital. After establishing a recital date, the student's 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 non-required, non-credit recitals, the hearing committee may be from within

the department. The instructor must notify the recital hearing committee, in writing, of the hearing date, recital date, time, and place.

For a junior or senior recital, the repertory must encompass three major style periods; at least one twentieth-century work must be included in either the junior or senior recital. The hearing committee may hear any of the recital repertory. 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 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 accompaniment that is not required by a student's degree program or honor scholarship.

Recital Attendance

Each semester in residence, students (except graduating seniors in their final semester) are required to register for and attend weekly student recitals/convocations on Thursdays at 3:10 p.m., as well as a minimum of ten other concerts and recitals, including

1. A solo faculty recital
2. The Blair String Quartet
3. The Blair Woodwind Quintet
4. The Blair Chamber Players or BMI Composer-in-Residence
5. An orchestral concert
6. A choral, opera, or faculty vocal performance
7. Any faculty concert
8. Three junior, senior, or other Blair recitals

The course receives zero credit hours but is graded on a Pass-Fail basis and listed on students' transcripts. Attendance sheets are provided in the lobby before and after recitals for students to register their attendance. Two absences from Thursday afternoon recitals are permitted each semester. If a student misses more than two such recitals or any of the ten other concerts, the requirement is not fulfilled. Make-up assignments, if needed, can be obtained from Professor Michael Hime. Information

regarding students' concert attendance records is distributed at mid-semester and again after the last recital of the semester. It is each student's responsibility to seek advice regarding needed make-ups. The final report is due the last day of exams. 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. If requirements for any semester are not fulfilled by the last class day of the *following* semester, a grade of *F* will automatically be assigned. In such a case, 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 required number of semesters (all but one: seven out of eight, eight out of nine, etc.) is passed.

Change of Address

Any change of address should be reported to the Blair registrar and the University Registrar. 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 transferrable. 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 materials are mailed to students on leave. Students failing to register by the dates printed in the University calendar (early May for fall semester, mid-November for spring) are withdrawn from the University and must apply for readmission if they wish to return.

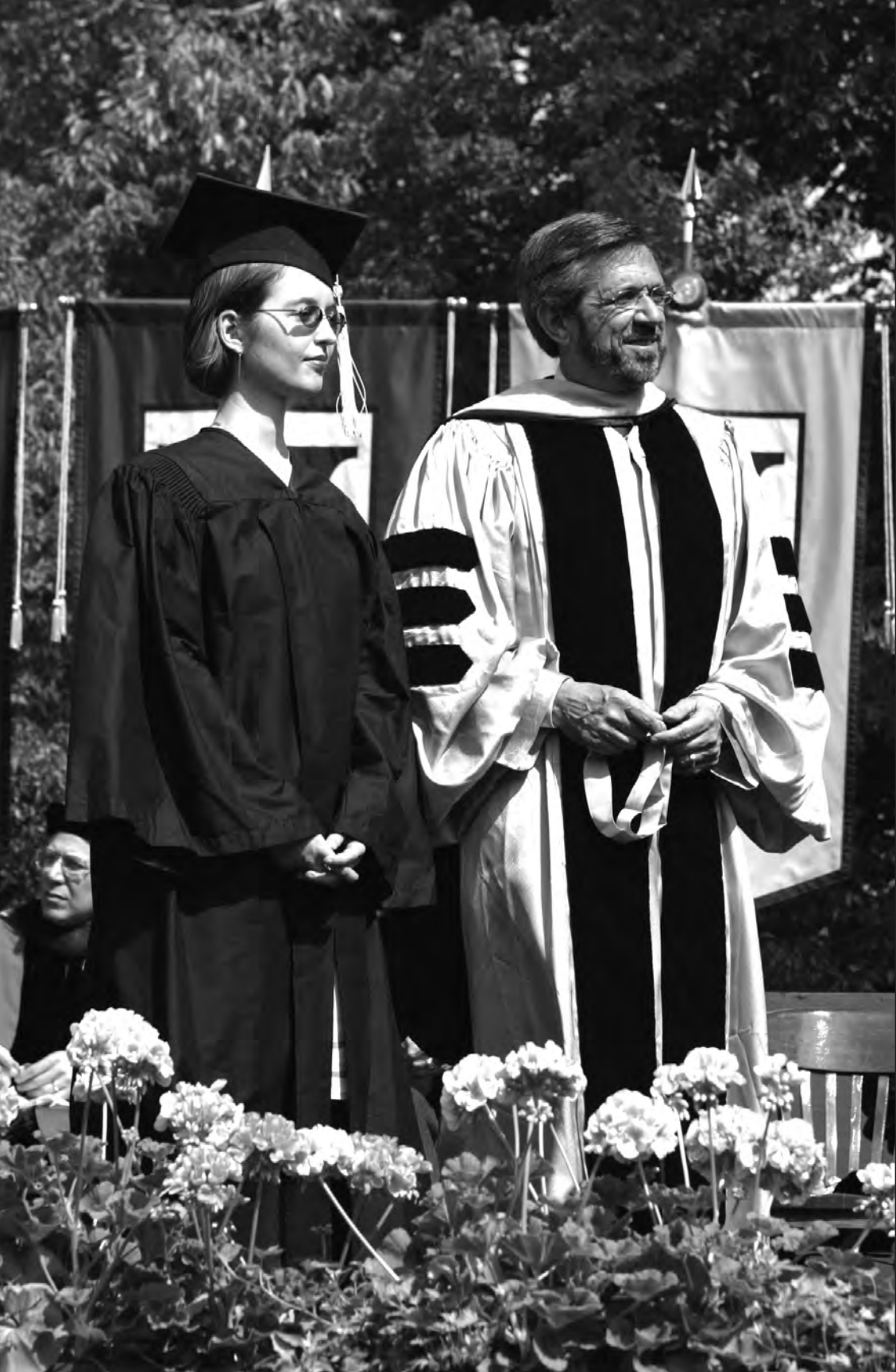
Withdrawal from the University

Students proposing to withdraw from the University during any semester must report to the Blair registrar 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.



B



Honors

1

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 earning a grade point average of 3.75 or above.

Magna Cum Laude. Students earning a grade point average of 3.5 or above.

Cum Laude. Students earning a grade point average of 3.25 or above.

Dean's List

Students are placed on the Dean's List if they have a minimum 3.5 grade point average while carrying 12 or more graded hours with no *F*, *M*, *I*, *MI*, or missing grades in any course, including non-credit courses.

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 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 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, especially on a topic that might lie outside the normal core of scholarship. Honors projects, independent study projects, and substantial class papers are eligible for consideration for the 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 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 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 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.

Courses of Study

1

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.

Bracketed figures indicate length of a course and semester hours credit—e.g., [3] for one semester and [3–3] for a two-semester course.

220a–220b indicates a year course. The first semester may be taken alone; but to take the second semester alone, students must have the consent of the instructor.

The semester in which a course is offered is indicated by the word FALL or SPRING in the course description.

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. Some courses are tentative. Current information is available on-line in OASIS during registration. A definitive *Schedule of Courses* is published each semester. Except for certain specified performance courses, 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.

B

Composition/Theory and Keyboard Harmony

Courses designed for the general university student (MUSC 100, 101, 102, 105, 106, 107, 116, 118, 119, 120a–120b, 191) 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. Several courses fulfill the humanities requirement for students in other schools of the University.

The music theory sequence I–V (MUSC 121, 122, 220, 221, 222) 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.

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.

101. Fundamentals of Music Theory. The fundamental elements of music theory, including music reading, scales, key signatures, chords, chord qualities, inversions, intervals,

rhythm, and meter. Designed for students with little or no technical training in music. Does not count toward a major or minor in music. FALL, SPRING. [2] Deakin, Harb.

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. Prerequisite: MUSC 100. [3] Walker.

105. The Romantic Generation. An exploration of outstanding works by Berlioz, Chopin, Liszt, Mendelssohn, and Schumann (all born between 1803 and 1811). Focus on structural analysis, stylistic innovations, mutual musical influences, and relations to classical models. Investigations into the meanings of musical Romanticism. SPRING. [3] Michael Rose. (Offered alternate years; offered 2004/2005)

106. Musical Nationalisms. An exploration of selected works by 19th- and 20th-century composers of various nationalities who draw on folk and ethnic sources in their works. An investigation of their aesthetic principles and compositional techniques. SPRING. [3] Michael Rose. (Offered alternate years; offered 2005/2006)

107. Beethoven and The Beatles. An analytical study of the music of Beethoven and The Beatles in their cultural contexts. Focus on analogous stylistic issues of consolidation and innovation. For students without formal training in music theory. Does not count toward a major or minor in music. FALL. [3] Michael Rose.

116. Discovering Music Creatively: Composition for the Novice. An investigation of the creative act through guided projects in composition, listening, reading, and discussion. Selected fundamental elements of music applied to aesthetically sophisticated creative projects modeled on concert music from Debussy to Cage to the present. Designed for students with little or no technical training in music. Prerequisite: any MUSC or MUSL course. Not open to majors or minors in music. [3] Kurek. (Not currently offered)

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. SPRING. [3] Cyrus, Michael Rose.

119. Motive, Counterpoint, and Structure: Bach, Brahms, and Bartok. Analysis of the compositional techniques shared by all three composers. For students without formal training in music theory. FALL. [3] Michael Rose. (Offered alternate years; offered 2003/2004)

120a–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. Not open to students who have completed 121 or 122. Does not count toward a major in music. [3–3] Deakin.

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. FALL. SPRING. [2] Harb, Carl Smith.

121e. Ear Training and Sightsinging I. Aural skills developed through sightsinging and harmonic/melodic dictation. Usually taken concurrently with 121. Prerequisite: ability to match pitch; successful completion of placement exam, or completion of MUSP 109. FALL, SPRING. [1] Bingham, Page.

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. SPRING. [2] Harb, Carl Smith.

122e. Ear Training and Sightsinging II. Continuation of 121e. Usually taken concurrently with 122. Prerequisite: 121e. Strongly recommended: C- or above in 121e. FALL, SPRING. [1] Bingham, Page.

123e. Ear Training and Sightsinging III. Continuation of aural skills developed in 121e and 122e. Prerequisite: 122e. Strongly recommended: C- or above in 122e. FALL, SPRING. [1] Bingham, Page.

124e. Ear Training and Sightsinging IV. Continuation of aural skills developed in 123e. Prerequisite: 123e. Strongly recommended: C- or above in 123e. FALL, SPRING. [1] Bingham, Page.

125e–126e. Advanced Ear Training and Sightsinging. Further development of aural skills, including techniques for hearing/singing atonal music. Prerequisite: 124e. [1–1] Bingham. (Not currently offered)

131a–131b. Keyboard Harmony I and II. 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. [1–1] Koutsoukos, Krieger, Melissa Rose.

132a–132b. Keyboard Harmony III and IV. 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. [1–1] Krieger, Melissa Rose.

133a. Accelerated Keyboard Harmony I. Sight reading, harmonic analysis, score reading, harmonic reduction from piano score, improvisation, realization of figured bass. Designed for keyboard majors and others with appropriate background. Prerequisite: placement test. Not open to students who have completed 131a–131b or 132a–132b. FALL. [2] Krieger.

133b. Accelerated Keyboard Harmony II. Intensive study of materials presented in 133a. Advanced harmonization of melody, modulation, and transposition. Prerequisite: 133a. Strongly recommended: C- or above in 133a. Not open to students who have completed 132a–132b. SPRING. [2] Krieger.

191. Sonata Forms. An analytical survey of sonata forms in works by Classical, Romantic, and Modern composers. Emphasis on structural listening, not score reading. Prerequisite: one course from MUSC 105, 106, 107, 118, 119; MUSL 140, 141, 144, 183. [3] Michael Rose. (Offered alternate years; offered 2005/2006)

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. FALL, SPRING, MAY. [3] Landes.

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. FALL. [3] Harb, Slayton.

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. SPRING. [3] Harb, Slayton.

222. Music Theory V: Post-Romantic and Twentieth-Century Techniques. Analysis of the scores and compositional techniques of Debussy, Schoenberg, Webern, Stravinsky, Bartok, Crumb, and others. Concepts applied to original compositions. Prerequisite: 122e, 221. FALL. [2] Kurek, Link.

223. Choral Arranging. 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 (Theory II) or permission of the instructor. [3] Smith. (Offered alternate years; offered 2004/2005)

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. FALL. [3] Kurek.

225. Seminar in Advanced Analysis. Intensive investigation of the principle of chromatic harmony through the analysis of selected works of the late 19th century. Prerequisite: 222. SPRING. [2] Slayton.

227. Individual Theory Instruction (Elective). Individual instruction and seminars. Score analysis and style-study composition. Prerequisite: 221 and consent of instructor. [Variable credit: 1–3 each semester] Staff.

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] Link, Michael Rose, Slayton.

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: 120a, 121, or equivalent skills. SPRING [3] Kurek.

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.

231a–231b. Composition. Individual instruction and seminars. A variety of media, styles, and forms. Electronic and experimental techniques. Prerequisite: 230 and consent of instructor. [3–3] Kurek, Link, Michael Rose, Slayton.

232abcd. Advanced Composition. Continuation of 231a–231b. [4 each semester] Kurek, Michael Rose.

294. Special Topics in Music Theory. Advanced study in theory, focussed on various topics from year to year, including such areas as advanced counterpoint, analysis of a specific composer, Shenkerian analysis, etc. Prerequisite: As listed in the *Schedule of Courses*. [2] Kurek, Link, Michael Rose, Slayton.

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: 232d. [1] Kurek, Michael Rose.

Ensembles

Four major performing ensembles, the Vanderbilt Symphonic Choir, the Vanderbilt Orchestra, the Vanderbilt Wind Ensemble, and the Vanderbilt Opera Theatre, are sponsored by Blair School of Music. 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. 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 or on a no-credit (NC) basis. Audit status or registration for zero hours may be possible with permission of the director.

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.

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] Childs.

101f. Vanderbilt Opera Theatre. Open by audition to all Vanderbilt students. Concert material is chosen from standard operatic repertoire, from Baroque to Contemporary. At least one production is presented. The format ranges from a collection of scenes from several operas to the production of an entire opera. [1] Shay.

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] Childs.

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.

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

150. 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 repertoires 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 and Wiggins.

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 repertoires. Lecture-demonstrations and rehearsals in one weekly two-hour session. At least one public performance each semester. No previous experience required. [1] Ahima.

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] Childs.

201c. 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: 1–2 each semester] Dorfman, Kochanowski, C. Lee, staff.

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: 1–2 each semester] Melissa Rose.

201e. 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: 1–2 each semester] Dorfman, Plummer.

201f. Chamber Music: Accompanying. Open to piano majors (performance or musical arts) or by consent of instructor. One hour of coaching and at least two hours of additional rehearsal each week. [Variable credit: 1–2 each semester] Dorfman, Nies, Melissa Rose.

201g. 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: 1–2 each semester] Kochanowski.

201L. Chamber Music: Brass Quintet. Open by consent of instructor. [1] Cox.

201w. Chamber Music: Woodwind Quintet. Open by consent of instructor. [1] C. Lee.

202a–202b–202c–202d. Blair Collegium: Instrumental 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. (202a: viols; 202b: recorders; 202c: mixed, including brass; 202d: continuo). 1–2 hours of rehearsal each week. [1] Williams.

203. Flute Choir. Open by consent of instructor. [1] Rogers.

204. Guitar Ensemble. Open by consent of instructor. [1] Johns, Phillips.

205. Trombone Ensemble. Open by consent of instructor. [1] Borden.

206. Brass Choir. Open by audition to all Vanderbilt students, this chamber ensemble of 10–20 brass players performs concert repertoire from the late Renaissance to Contemporary. At least one formal concert is presented each semester. [1] (Not currently offered.)

- 207. Saxophone Ensemble.** Open by consent of instructor. [1] F. Kirchner.
- 208. Woodwind Choir.** Open by audition to all Vanderbilt students, this chamber ensemble of 8–20 woodwind players performs concert repertoire from early Classical to Contemporary. At least one formal concert is presented each semester. [1] Estill, C. Lee. (Not currently offered)
- 209. Harp Ensemble.** Open by consent of instructor. [1] Shaffer.
- 210. Percussion Ensemble.** Open by consent of instructor. [1] Wiggins.
- 211. Tuba Ensemble.** Open by consent of instructor. [1] Davis.
- 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] Plohman.
- 213. Trumpet Ensemble.** Open by consent of instructor. [1] Cox.
- 299. Vanderbilt New Music Ensemble.** An ensemble dedicated to modern music comprising one each of the major instruments of the orchestra. Admission through competitive audition. At least one major performance is presented. FALL. [1] Fountain.

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. Courses appropriate for non-music majors include MUSL 103, 114, 115W, 140, 144, 145, 147, 148, 149, 150, 151, 160, 170, 171, 183, 200, 218, 219, 247, 250, 255, 261, 264, 278, and 294. Most fulfill the humanities requirement for students in Peabody College and the Engineering School. Some fulfill the social science requirement. Six courses (MUSL 115W, 140, 141, 160, 183, and 200) fulfill the humanities requirement of the CPLE for students in the College of Arts and Science. One, MUSL 147 (American Music), fulfills the American Component of the History and Culture requirement; two, MUSL 170 (Asian Musical Cultures) and MUSL 171 (African Music), fulfill the International Component. MUSL 115W fulfills the CPLE writing requirement. Several courses fulfill requirements for majors in African American Studies, American and Southern Studies, and European Studies in the College of Arts and Science.

Honors Program in 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 294, Selected Topics in Music History (3 hours), and MUSL 299a–299b, Senior Honors Thesis (6 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 may graduate with Honors or High Honors in music literature and history.

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. FALL. [3] Lovensheimer.

114. Survey of Electronic Music. Development of *musique concrète*, electronic music and computer music since 1945. The theory, technique, and aesthetic of electro-acoustic music. [3] (Not currently offered)

115W. Freshman Seminar. Music and Modernism: The Plunge into the Abyss. An investigation into the dramatic changes in Western musical style at the beginning of the twentieth century (including Stravinsky, Schoenberg, and Bartok). Listening assignments and discussions of music; readings and discussions on the cross-currents among music, literature, and the plastic arts. Major focus is on the relationships between Modernism and tradition, and on the lines of force between historical events and artistic production. FALL. [3] Michael Rose. (Offered alternate years; offered 2003/2004)

115W. Freshman Seminar. Shakespeare and Music. Investigates a small cross-section of the thousands of works inspired by Shakespeare's dramas during the last 300 years, ranging from opera to film scores and Broadway renditions, from "authentic" music within Shakespeare's plays to nineteenth-century incidental music to symphonic compositions. Examines the relationship between changes in approach to Shakespeare on the stage and changes in the style, scope, and content of the music that claims a Shakespearean identity. No musical background required. FALL. [3] Cyrus. (Offered alternate years; offered 2004/2005)

140. Introduction to Music Literature. An introduction to the literature of music from A.D. 600 to the present through a study of selected works. Extensive listening is required. Not open to students who have completed 141. Does not count toward a major in music. FALL, SPRING. [3] Hime.

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 140. FALL, SPRING. [3] Calico, Cyrus.

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. SPRING. [3] Michael Rose. (Offered alternate years; offered 2004/2005)

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] Pam Schneller. (Offered alternate years; offered 2005/2006)

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: 140 or 141, or music-reading skills sufficient to follow a score. FALL, SPRING. [3] Lovensheimer.

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. [3] Barz.

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. FALL, SPRING. [3] Lovensheimer, Lowe.

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] Barz.

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. SPRING. [3] Lovensheimer.

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. [3] Gunderman.

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. FALL. [3] Barz, Simonett.

170. Asian Musical Cultures. A survey of selected classical, folk, ritual/devotional, and popular musics of India, Indonesia, Japan, and China. Historical, social, and cultural contexts; extensive listening. Recommended: 160. [3] Staff. (Not currently offered)

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.

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, SPRING. [3] Calico, Link, Michael Rose.

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: 140 or 141 or familiarity with the style periods of classical Western music. SPRING. [3] Cyrus, Lowe. (Offered alternate years; offered 2005/2006)

218. Words and Music. An investigation of literature that has inspired musical settings and of the musical settings themselves. Emphasis on literary and musical analysis and interpretation. No musical training assumed. SPRING. [3] Michael Rose and Mark Jarman, Professor of English. (Offered 2004/2005)

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. SPRING. [3] Michael Rose; A.-J. Levine, Professor of New Testament Studies. (Offered alternate years; offered 2005/2006)

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. FALL, SPRING. [3] Cyrus.

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: 140 or 141. Strongly recommended: 242. FALL, SPRING. [3] Cyrus; Lowe.

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: 140 or 141. Strongly recommended: 243. FALL, SPRING. [3] Calico.

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. FALL. [3] Calico. (Offered alternate years; offered 2004/2005)

249. Historical Performance Practices. Methods, materials, and issues involved in the performance of music prior to 1800. Ornamentation, improvisation, vocal and instrumental tone color and technique, access to repertoire and performing editions. Practical application of concepts. Prerequisite: 140 or 141. [3] (Not currently offered)

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. FALL. [3] Simonett.

255. Charles Ives. An investigation of the life and music of the American composer Charles Ives (1874–1954), and the forms and meaning that follow from such a study. Prerequisite: any MUSL course or American and Southern Studies 100. [3] Cockrell. (Not currently offered)

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 American and Southern Studies 100. SPRING. [3] Simonett. (Offered alternate years; offered 2004/2005)

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.

278. Music and Religion. An investigation into the ways in which religion and music contribute to community formation throughout the world. Music's interdependent relationship with religious texts, religious performance, trance, sacrifice, and folk religions. SPRING. [3] Barz. (Offered alternate years; offered 2003/2004)

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.) [Variable credit: 1–3 hours each semester] Musicology faculty.

294. Selected Topics in Music History. Selected methodological approaches focused on a particular topic each semester, as announced in the *Schedule of Courses*. Offerings have included "Brahms and the Anxiety of Influence," "Music of the South," "Haydn and Mozart," "Afropop," "Mozart Piano Concertos," "Mingus, Monk, and Miles: Jazz Biography and Jazz Composition," and "Beethoven and Schubert." Prerequisite courses announced in the *Schedule of Courses*. May be repeated for credit when topics vary. [3] Musicology faculty.

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 242–244. [Variable credit, 1–3 hours each semester; may be repeated once] Musicology faculty.

299a–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 in music literature and history. Open only to students in the department honors program. Prerequisite: departmental approval of formal prospectus. [3–3] Musicology faculty.

B

Teacher Education

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. SPRING. [1] F. Kirchner.

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. FALL. [1] Jones

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. FALL. [1] Bingham.

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. SPRING. [1] Wiggins.

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. SPRING. [1] Alley.

250abcd. 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. SPRING. [1] Verrier.

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] Verrier.

EDUC 2360. Graduate 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 undergraduate degree program. Bi-weekly seminar included. FALL. [1] Verrier.

320. Methods and Materials in Instrumental Music, PreK through 12. Techniques and materials for teaching instrumental music, PreK through 12. Emphasizes instrumental organization, administration, pedagogical practices, and developing school instrumental music programs. FALL. [6] Verrier.

330. Methods and Materials in Vocal/General Music, PreK through 12. Techniques and materials for teaching vocal music in junior and senior high school and general music, PreK through 12. Emphasizes vocal music organization, administration, pedagogical practices, and the study of general music activities for PreK and elementary school, such as Orff, Kodaly, Dalcroze. FALL. [6] Alley, Childs.

EDUC 3003. Student Teaching. Observation and teaching experience on a full-time basis. Includes two placements at two different age levels. Prerequisite: Admission to student teaching. Co-requisite: ED 3004. SPRING. [6] Verrier.

EDUC 3004. Student Teaching Seminar. Study and discussion of experiences emerging from student teaching, particularly planning school programs and assuming full responsibility in the classroom. Co-requisite: ED 3003. SPRING. [1] Verrier.

Other Music Courses

Non-Credit Requirements

108. Recital Attendance. Weekly recitals in solo and chamber music settings, presented by students enrolled for performance instruction, and ten additional faculty/student recitals and concerts. Required of all music degree (B.Mus.) students. (See Academic Regulations section above.) Offered on a pass/fail basis. [0] Hime.

109a. Flute Performance Class. Weekly observation and participation. Required of all flute majors, performance and musical arts. Offered on a pass/fail basis. [0] J. Kirchner.

109b. Violin Performance 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.

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.

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.

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.

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.

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.

109L. Bass Performance Class. Weekly observation and participation. Required of all bass majors, performance and musical arts. Offered on a pass/fail basis. [0] Meyer, Wanner.

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.

110b. Low Brass Performance Class. Weekly observation and participation. Required of all trombone, euphonium, and tuba majors, performance and musical arts. Offered on a pass/fail basis. [0] Borden.

110c. Fiddle Performance Class. Weekly observation and participation. Required of all private students. Offered on a pass/fail basis. [0] Plohman.

110d. Oboe Performance Class. Weekly observation and participation. Required of all oboe majors, performance and musical arts. Offered on a pass/fail basis. [0] Wiesmeyer.

110e. Bassoon Performance Class. Weekly observation and participation. Required of all bassoon majors, performance and musical arts. Offered on a pass/fail basis. [0] Estill.

110f. Clarinet Performance Class. Weekly observation and participation. Required of all clarinet majors, performance and musical arts. Offered on a pass/fail basis. [0] Lee.

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.

110L. Saxophone Performance Class. Weekly observation and participation. Required of saxophone majors, performance and musical arts. Offered on a pass/fail basis. [0] F. Kirchner.

111a. Horn Performance Class. Weekly observation and participation. Required of horn majors, performance and musical arts. Offered on a pass/fail basis. [0] Norton.

111c. Violin Etude Class. Weekly observation and participation. Required of all students of Heard. Offered on a pass/fail basis. [0] Heard.

111d. Violin Scale and Etude Class. Weekly observation and participation. Required of all students of Teal. Offered on a pass/fail basis. [0] Teal.

111e. Violin Etude Class. Weekly observation and participation. Required of all students of Huebl. Offered on a pass/fail basis. [0] Huebl.

Specialty Courses

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] Foglesong.

101. Arts Management. A history of arts institutions in the United States. The production of exhibitions of the visual arts, drama, dance, opera, musical theatre, and symphonic con-

certs. Issues in contemporary arts management. Readings, live productions, guest speakers, and visits to local nonprofit arts institutions. [3] (Not currently offered)

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. [2] Wilder.

104. Lyric Theatre Workshop. Introduction to the various elements of the lyric theatre experience: acting, movement, improvisation, use of the voice, stage combat, and scene study. Presentation of scenes from the operatic and/or American musical theatre repertoire. Open to all Vanderbilt students by audition. FALL. [1] Shay.

105a–105b. Traditional Fiddling. Historical and performance-based study of the fiddle's involvement with musical Americana. 105a: The older traditional styles of American music, including old-time, bluegrass, Texas (contest-style), and western swing fiddling. 105b: Other styles of fiddle music, including Celtic, old jazz, country, and other styles of world music. Prerequisite: basic violin skills. [1–1] Plohman.

114. Fingerboard Harmony. Advanced guitar skills: modal positions, modal patterns, score reading, arpeggios, transposition, and chord progressions. Prerequisite: MUSP 104B or permission of instructor. Available to Arts and Science students for professional credit. FALL, SPRING. [1] Phillips

125. Acoustics and Psychoacoustics of Music. The physics of sound as produced by common types of instruments (including voice), based on vibrations of strings, tubes, and plates. Basic aspects of sound perception and cognition: what sound is, how it is produced, and how it is perceived. Available to Arts and Science students for professional credit. MAY. [2] Borden.

127. Intonation, Keyboards, and Temperament. The piano's development and its influence on modern intonation. String behavior, the harmonic series, and tuning. Practical instruction on the piano's function, tuning, and the effects of various temperaments on keyboard music. SPRING. [1] Foote.

131. Elements of Jazz Improvisation. Introduction to the techniques of jazz improvisation. Development of basic performing techniques in various styles. Prerequisite: MUSC 131a. FALL, SPRING. [1] Beegie Adair, Spencer.

132. Introduction to Jazz Improvisation for Strings. Open to all violin, viola, and cello students, the course is designed to provide an understanding of the basic rules of jazz improvisation and an appreciation of the history of stringed instruments in jazz. Includes associating scales with chords, improvising with chord notes as target notes, incorporating space and rhythms and simple tune analysis. Available to Arts and Science students for professional credit. [1] Silverman.

143. Lyric Writing. Practical aspects and process of lyric writing. Ideas, tools, and structure. Balance, metaphor, rhyme, and rhythm. SUMMER [1] Pattison.

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. FALL [1] Estill.

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] Borden.

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.

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.

159c. Diction for Singers: German. High German diction, using the International Phonetic Alphabet. Prerequisite: 159 or permission of the instructor. Available to Arts and Science students for professional credit. SPRING. [1] Montgomery.

159d. Diction for Singers: French. French stage diction, using the International Phonetic Alphabet. Prerequisite: 159 or permission of the instructor. Available to Arts and Science students for professional credit. FALL. [1] Montgomery.

160. Stage Movement for Musicians. General introduction to stage movement and performance art. Techniques of pantomime, progressive relaxation and movement improvisation. Postural alignment and corrective exercise therapy as needed. Creative exploration of the movement dimensions of multi-media performance art events through class participation. No dance experience necessary. [2] (Not currently offered)

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.

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

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. [1] Phillips.

170. Breathing: Respiratory Function for Woodwind and Brass Performers. The use of the respiratory system for music performance. Physiology, the psychology of training, and air pathway diseases. Individual instruction applied to the performer's instrument. MAY [1] Borden.

Orchestral Repertoire

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. SPRING. [1] Estill.

251e. Woodwind Orchestral Repertoire (Elective). Continuation of 251. May be repeated for credit. SPRING. [1] Estill.

252. Brass Orchestral Repertoire. Exploration of the standard orchestral repertoire with emphasis on the late Romantic period. Performance of selected excerpts, coached and conducted. FALL. [1] Borden.

252e. Brass Orchestral Repertoire (Elective). Continuation of 252. May be repeated for credit. FALL. [1] Borden.

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; offered 2004/2005)

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. SPRING. [1] Wiggins. (Offered alternate years; offered 2003/2004)

254a. String 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). [1] Vanosdale, Plummer, Mansell, Wanner, Shaffer.

254c. Violin Orchestral Repertoire (Elective). Continuation of 254b. May be repeated for credit. [1] Vanosdale.

254d. Viola Orchestral Repertoire (Elective). Continuation of 254b. May be repeated for credit. [1] Plummer.

254e. Cello Orchestral Repertoire (Elective). Continuation of 254b. May be repeated for credit. [1] Mansell.

254f. Harp Orchestral Repertoire (Elective). Continuation of 254b. May be repeated for credit. [1] Shaffer.

Instrument Literature

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. SPRING. [2] Carl Smith. (Offered alternate years; offered 2004/2005)

256. Piano Literature. A survey of works for piano from the seventeenth through the twentieth centuries, within the context of historical perspective, stylistic awareness, and pianism. Designed primarily for piano majors. SPRING. [2] Nies. (Offered alternate years; offered 2004/2005)

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)

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; offered 2004/2005)

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: MUSL 141, MUSC 221, two years of voice study. FALL. [2] Retzlaff. (Offered alternate years; offered 2003/2004)

Conducting

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 122e, 132b or 133b, and 221. FALL, SPRING, MAY. [2] Fountain, Verrier.

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, Verrier.

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] Childs.

Pedagogy

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. FALL. [3] Borden, John Rieser, Professor of Psychology, Peabody College. (Offered 2004/2005)

260. Music Cognition Research Seminar. Continuation of 161, emphasizing study and discussion of recent research in music cognition. Development of formal research proposal. Prerequisite: MUSO 161. SPRING. [3] Borden, Rieser (Offered 2004/2005).

265a–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. FALL, SPRING [3] Carol Smith. (Offered alternate years; offered 2004/2005)

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; offered 2004/2005)

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)

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; offered 2004/2005)

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. (Offered alternate years; offered 2004/2005)

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. [Variable credit: 1–2 hours each semester] Staff.

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). [Variable credit: 1–3 hours each semester] Staff.

Independent Study

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.) [Variable credit: 1–3 hours each semester] Staff.

Senior Seminar

297. Senior Seminar. Comprehensive review and correlation of the materials of music history, literature, and theory. Prerequisite: MUSC 221, MUSL 244. [1] (Not currently offered)

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 computer registration system.

Professional Credit. Students in the College of Arts and Science earn professional credit.

Fees. Music fees are in addition to tuition charges and are not refundable after the change period. Fees include free admission to all Blair Series Concerts; a complimentary ticket must be obtained *in advance* at the receptionist's desk with a Blair identification card. The cost for group instruction is \$440 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.*

102a–102b. Introduction to Piano I and 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 60-minute group lesson weekly. FALL, SPRING. [1–1] Reagan, Stith, Walker.

103a. Introduction to Voice. Fundamentals of vocal technique, including breathing, posture, and vowel production. Also includes English and Italian diction. One 60-minute group lesson weekly. [1] Montgomery, Prentice, Thompson.

104a–104b. Introduction to Guitar I and 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 60-minute group lesson weekly. [1–1] Phillips.

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 60-minute group lesson weekly. [1] Wiggins.

106a–106b. Introduction to Recorder I and II. Fundamentals of recorder playing using soprano, alto, tenor, and bass recorders. Instruction also available on krummhorn and cor-netto. Ensemble literature from the Renaissance, Baroque, and Classic periods. One 60-minute group lesson weekly. [1–1] Epstein.

107a–107b. Introduction to Fiddle I and II. 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. [1–1] Plohman.

108a–108b. Introduction to Mandolin I and II. Designed for those with no experience in playing mandolin. Technical, stylistic, and historical elements involved in playing mandolin, as well as basic notation and idiomatic techniques. 108a will focus on traditional American dance tunes, vocal songs, and waltzes; 108b will focus on more advanced American repertoire, Celtic tunes, swing, and improvisation. [1–1] Baldassari. (Not currently offered)

109. Fundamentals of Singing. Basic fundamentals for the beginning vocalist, including developing the singing voice, posture, breathing technique, and the physiology of vocal production. Open only to students recommended by the ear training and sightsinging faculty. [1] Christopher.

B

Individual Performance Instruction: Musical Arts and Elective

Individual instruction is focused on the art and practice of an instrument or voice, with emphasis on tone quality, technique, rhythm, interpretation, and literature.

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

Credit. University students enrolled in individual instruction may earn 1 or 2 credit hours depending on lesson length and practice commitment. Lessons 30 minutes in length require 5 hours minimum practice per week, generating 1 credit hour. Lessons 45 minutes in length earn 1 or 2 credit hours, with 5 or 10 hours weekly practice respectively. Lessons 60 minutes in length require 10 hours minimum practice per week, generating 2 credit hours. Beginners may not register for more than 1 hour of credit. Students in the College of Arts and Science earn professional credit.

Fees. Music fees are in addition to tuition charges 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. Fees are waived for required instruction for majors or minors. Fees include free admission to all Blair Series Concerts; a complimentary ticket must be obtained *in advance* by presenting a Blair identification card. For courses numbered MUSP 171–196 and 171L–190L, fees per semester are as follows:

One 30-minute lesson weekly	\$570
One 45-minute lesson weekly	\$810
One 60-minute lesson weekly	\$1020
Practice room (optional)	\$205
Organ or harp practice room (optional)	\$225

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

171-195. Individual Instruction. Non-majors usually register for a course number without the "L," as do B.Mus. majors taking elective credit (a second instrument) and composition/theory majors enrolled in any performance instruction. The "L" suffix indicates achievement of a moderately advanced level of performance; consent of the instructor is required. The Blair registrar can provide repertoire information and approval forms. "L" level registration is usually reserved for students taking music as a second major (a total of 4 hours required), students taking a minor in music performance (12 hours required), B.Mus. students taking a minor instrument (8 hours required), and Blair musical arts majors in their primary performance area. The 200-level "L" courses are open only to Blair musical arts juniors and seniors in their primary performance area. [Variable credit: 1-2 hours each semester]

171, 171L, 271L. Flute. J. Kirchner, Rogers.

172, 172L, 272L. Oboe. Taylor, Menking, Wiesmeyer.

173, 173L, 273L. Clarinet. C. Lee, Mitchell.

174, 174L, 274L. Saxophone. F. Kirchner.

175, 175L, 275L. Bassoon. Estill.

176, 176L, 276L. Horn. Norton.

177, 177L, 277L. Trumpet. Cox, Suska.

178, 178L, 278L. Trombone. Borden.

179, 179L, 279L. Tuba. Davis, G. Long.

180, 180L, 280L. Percussion. Wiggins.

181, 181L, 281L. Harp. Shaffer.

182, 182L, 282L. Violin. Baker, Greer, Hall, Heard, Heubl, E. Long, Olson, Page, Speck, Teal, Vanosdale.

183, 183L, 283L. Viola. Kochanowski, Plummer, Reinker.

184, 184L, 284L. Cello. Mansell, Wang.

185, 185L, 285L. Double Bass. Meyer, Nelson, Reist, Wanner.

186, 186L, 286L. Piano. Bartles, Dorfman, Krieger, Nies, Reagan, Rhee, Melissa Rose, Roland Schneller, Short, Walker.

187, 187L, 287L. Organ. Students must have had at least two years of piano study. Carl Smith.

188, 188L, 288L. Guitar. Johns, Phillips.

189, 189L, 289L. Voice. Jarman, Montgomery, Prentice, Retzlaff, Shay.

190, 190L, 290L. Euphonium. Davis.

- 191. Viola da Gamba.** Stenstrom.
192. Fiddle. Combs, Plohman.
193. Harpsichord. Carl Smith.
194. Dulcimer. Schnauffer.
195. Mandolin. Baldassari.
196. Recorder. Epstein.

Individual Instruction: B.Mus. Degree

Performance Majors. Freshman and sophomores seeking the B. Mus. in performance register for 100-level instruction. Freshmen register for a in fall, b in spring. Sophomores register for c in fall, d in spring. Juniors and seniors register for 200-level instruction; juniors register for a in fall, b in spring, and seniors register for c in fall, d in spring. Performance majors who wish to take a second instrument may enroll in MUSP 171–196 (with no letter suffix) for 1 or 2 hours elective credit. Consent of the instructor is required. The “L” suffix indicates achievement of a moderately advanced level of performance; consent of the instructor and notification of the Blair registrar are required.

Fees. Fees are waived for required performance instruction for B.Mus. students. For elective instruction, there is an additional fee unless this instruction and a fee waiver are recommended by the adviser and approved by the associate dean, usually for financial hardship.

Musical Arts Majors. Blair musical arts majors register for “L” level courses in the primary instrument (or voice), 100 level for freshmen and sophomores, 200 level for juniors and seniors. (See Individual Performance Instruction: Musical Arts and Elective section.)

Composition/Theory Majors. Blair composition/theory majors register for performance courses with no letter suffix, or for “L” level courses if their proficiency warrants it and the instructor has granted consent. (See Individual Performance Instruction: Musical Arts and Elective section.)

Individual Instruction for Performance Majors Only

171abcd, 271abcd. Flute. [4] J. Kirchner.

172abcd, 272abcd. Oboe. [4] Taylor.

173abcd, 273abcd. Clarinet. [4] C. Lee.

174abcd, 274abcd. Saxophone. [4] F. Kirchner.

175abcd, 275abcd. Bassoon. [4] Estill.

176abcd, 177abcd, 178abcd, 179abcd, 180abcd. Brass and Percussion. [4] Requirements for 176d, 177d, 178d, 179d, and 180d include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit

subsequent enrollment in 276a, 277a, 278a, 279a, and 280a. Students are required to perform a program of twenty to thirty minutes for the brass/percussion faculty. Selections must be chosen from the solo repertoire and represent at least three style periods. Accompaniment is expected where called for. Memorization is required as appropriate and in consultation with the teacher. Sonatas need not be memorized. Percussionists must perform on keyboard percussion, timpani, and snare drum and/or multiple percussion. Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in brass or percussion performance at Blair, necessitating transfer to another degree program. A student may petition the brass/percussion faculty once for a second hearing, with entirely different repertoire, to take place before the end of the first semester of the junior year. It is the responsibility of the student, in cooperation with the teacher, to make all arrangements regarding this hearing, including venue reservation and assembling the faculty hearing committee.

176abcd, 276abcd. Horn. [4] Norton.

177abcd, 277abcd. Trumpet. [4] Cox.

178abcd, 278abcd. Trombone. [4] Borden.

179abcd, 279abcd. Tuba. [4] Davis, Long.

180abcd, 280abcd. Percussion. [4] Wiggins.

181abcd, 281abcd. Harp. [4] Shaffer.

182abcd, 183abcd, 184abcd, 185abcd. Strings. Requirements for 182d, 183d, 184d, and 185d include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in 282a, 283a, 284a, and 285a. Students are required to perform an approximately twenty-minute program for the string faculty. Repertoire should include solo Bach, and selections must represent at least three style periods. Memorization is required as is appropriate to the repertoire. Sonatas need not be memorized. Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in string performance at Blair, necessitating transfer to another degree program. A student may petition the string faculty for another hearing, with entirely different repertoire, to take place before the end of the first semester of the junior year.

182abcd, 282abcd. Violin. [4] Baker, Greer, Heard, Huebl, Teal, Vanosdale.

183abcd, 283abcd. Viola. [4] Kochanowski, Plummer.

184abcd, 284abcd. Cello. [4] Wang.

185abcd, 285abcd. Double Bass. [4] Meyer, Wanner.

186abcd, 286abcd. Piano. Requirements for 186c include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in 286a. Students are required to perform for the upper division hearing committee a thirty-minute memorized program of solo piano literature, representing at least three style periods. The committee consists of the student's teacher, at least two additional piano faculty members, and at least two faculty members from other music areas. Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in piano performance at Blair, necessitating transfer to another degree program. A student may petition the committee for another hearing, with entirely different repertoire, to take place before the end of the sophomore year. [4] Dorfman, Krieger, Nies.

187abcd, 287abcd. Organ. [4] Carl Smith.

188abcd, 288abcd. Guitar. Requirements for 188c include an upper divisional hearing in the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in 288a. Students are required to perform an approximately twenty-minute memorized program representing at least three style periods. Failure to pass this hearing demonstrates a lack of the requisite skills to graduate in guitar performance at Blair, necessitating transfer to another degree program. A student may petition the guitar faculty for another hearing, with entirely different repertoire, to take place before the end of the sophomore year. [4] Johns.

189abcd, 289abcd. Voice. Requirements for 189d include an upper divisional hearing in the second semester of the sophomore year to determine continuance in the performance degree program and permit subsequent enrollment in 289a. Students are required to perform for the voice faculty a twenty-minute memorized program, with 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 vocal performance at Blair, necessitating transfer to another degree program. A student may petition the voice faculty for another hearing, with entirely different repertoire, to take place before the end of the first semester of the junior year. [4] Jarman, Prentice, Retzlaff, Shay, Thompson.

190abcd, 290abcd. Euphonium. [4] Davis.

Recitals

295. Junior Recital. Students are encouraged to prepare a joint recital, shared with another degree candidate. (See Academic Regulations section.) [1] Staff.

299. Senior Recital. (See Academic Regulations section.) [1] Staff.



School of Engineering

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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 Management of Technology 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 degree 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 pro-

grams that are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). 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 degree 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, including a new building opened in the fall of 2001. The new 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 the new Featheringill Hall, contains laboratories, offices and classrooms serving both the Civil and Environmental Engineering Department and the Electrical Engineering and Computer Science Department. Remodeling of Jacobs Hall was completed in 2002. The Olin Hall of Engineering houses Chemical 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 Geology Department. Another sup-

porting department, Biological Sciences, is housed in Medical Research Building III. Most classes in humanities and the social sciences are conducted in Calhoun, Furman, Garland, and Wilson halls.

Accreditation

All programs leading to the B.E. degree are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

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 Career Center.

Supporting Organizations

E

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. degree is awarded in the areas of computer science and engineering science.

The School offers the Master of Engineering (M.Eng.) degree, 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			•	•	•
Management of Technology			•	•	
Materials Science and Engineering			•	•	•
Mechanical Engineering	•		•	•	•

Undergraduate Degrees

Bachelor of Engineering

The Bachelor of Engineering degree 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 degree is offered in Computer Science and Engineering Science. Computer Science requires 122 semester hours and Engineering Science requires 120 semester hours. These programs have more flexibility in elective choice than the B.E. degree programs.

The Freshman 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 ES 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 by the director of the undergraduate mathematics program. 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. Some students may be given advanced placement without credit if it is adjudged by the department that they have completed analytic geometry and calculus courses in high school equivalent to Vanderbilt courses, but have not taken Advanced Placement Examinations. In such cases, the minimum number of hours in mathematics required for the student's chosen engineering major will be reduced accordingly, but the minimum number of hours required for graduation will not be reduced.

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.

Precalculus physics courses 101, 105, 106, and 108 cannot be credited toward a degree in the School of Engineering.

Engineering Freshman Seminars

The School of Engineering provides optional seminars to give freshmen the opportunity to experience the creative process of using engineering concepts to solve real-world problems. These seminars offer students a unique opportunity to work closely, typically in small groups, with seasoned engineering professors.

Designed to challenge and engage freshmen intellectually, provide practice in communication skills, and aid in the selection of a specific engineering major, seminars are offered on a variety of topics. Some focus on research projects in the professor's area of engineering expertise, others concentrate on current scientific and technical problems of particular interest to the engineer, and others survey engineering practice in a variety of specialties and topics. Helping students learn problem-solving skills that can be applied across many disciplines throughout life, the seminars can be invaluable components of the freshman curriculum.

All freshman seminars carry 1 hour of open elective credit for engineering students. They are optional, but the Engineering School faculty consider this seminar program to be very important for both students and professors. Freshmen 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 freshman year the Office of the Dean will mail the booklet, *Freshman Seminars*, describing seminar topics for the upcoming year.

Liberal Arts Core

In order to provide the elements of a liberal 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 Humanities, Social Science, Music Performance and Studio Art, and Technology-Society. Acceptable courses in each category are listed in the tables below. Within the 18-hour requirement, the student must meet the following distribution requirements:

1. At least 6 hours of Humanities.
2. At least 6 hours of Social Science.
3. Within the minimum 12 hours of Humanities and Social Science, at least 6 hours must be “advanced”. A course is considered advanced if it is 200-level (in the College of Arts and Science) or if it is the student’s second course in a specific discipline. History courses above 153 and Religious Studies courses above 115 are considered advanced.
3. A maximum of 3 hours of Music Performance and Studio Art may be taken to satisfy the Liberal Arts Core. Additional courses in Music Performance and Studio Art may be taken as open electives.
4. A maximum of 3 hours of Technology-Society electives may be taken to satisfy the Liberal Arts Core. The Engineering Science major requires 3 hours of Technology-Society electives.

Humanities

Department	Courses Qualifying
African American Studies	All courses
American and Southern Studies	All courses
Arabic	All courses
Art and Art History	All courses except studio courses
Catalan	All courses
Chinese	All courses
Classics	All courses
Communication Studies	All courses
East Asian Studies	All courses
English	All courses
European Studies	All courses
Film Studies	All courses
French	All courses
German	All courses
Greek	All courses
Hebrew	All courses
Humanities	All courses
Italian	All courses
Japanese	All courses
Jewish Studies	All courses
Latin	All courses
Latin American Studies	All courses

Music	MUSC: All courses except 100, 101, 131ab, 132ab, 133ab; MUSL: All courses except 147, 160, 170, 171, 200, 250, 261; MUSO: 102, 261, 262, 263.
Philosophy	All courses
Religious Studies	All courses
Russian	All courses
Spanish	All courses
Theatre	All courses except 221
Women's Studies	259, 270, 271, 290

Social Sciences

Department

Courses Qualifying

Anthropology	All courses
Economics	All courses in economics except 150. Financial Economics and Managerial Studies courses must be classed as open electives.
History	All courses
Human and Organizational Development	1000, 1001, 1024, 1100, 1200, 2100, 2240, 2470, 2545
Linguistics	All courses
Music	MUSL: 147, 160, 170, 171, 200, 250, 261 MUSO: 161, 260
Political Science	All courses
Psychology	All College of Arts and Science psychology courses except 201, 208, 209, 234, 236, 269, 274, 277, 279; All Peabody College psychology courses except 2101, 2102, 2510, 2520, 2530, 2691, 2810, 2820, 2980, 2901, 2990
Sociology	All courses
Women's Studies	240, 243, 288

Music Performance and Studio Art

Department

Courses Qualifying

Art and Art History	All AHST courses with studio in the title: AHST 108
Music	MUSC: 131ab, 132ab, 133ab; MUSE: all courses; MUSO: 114, 132; MUSEP: all 100-level courses.

Technology-Society Electives

Department

Courses Qualifying

Computer Science	151
Engineering Science	153, 155, 157, 159
Environmental Engineering	275
History	292
Management of Technology	150, 244, 265, 275
Philosophy	244

Open Electives

Courses excluded from the listings in the Liberal Arts Core may be taken as open electives.

Officer education courses Military Science 113, 151, 152, and Naval Science 231 and 241 may be taken as open electives. NS 121 may be used as an open elective if the student has not taken ME 220a. No other officer education courses earn credit toward a degree. AFROTC students may count 6 hours of their 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, computer science, electrical engineering, environmental engineering, management of technology, materials science and 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. The Graduate Record Examination is also required for admission to the Management of Technology program. 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's of Engineering degrees and the integrated Management of Technology M.Eng./M.B.A. degrees, see the chapter on *Special Programs*.

Special Programs

1

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 3.2 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 3.2 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.

Three-Year Program

The School of Engineering encourages students who so desire to earn a baccalaureate degree in three years. Three-year students normally will be in residence for three regular academic years and three summer sessions. They may enter in June or August. Entering freshmen should confer with the chair of their prospective department at the time of first enrollment to plan a suitable schedule of classes. In general, students should take the required mathematics and basic sciences during the first twelve to fifteen months in residence. They will then be prepared to take many junior-level basic engineering science courses during the second regular academic year. The third academic year should differ only slightly from the regular senior year.

Some liberal arts elective work must be taken during the summer session—and this may prove to be a limitation. The three-year student must also be prepared to accept some overload beyond the 15 to 16 hours per semester required in the normal four-year program.

E

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.

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 management of technology, materials science, computer science, environmental engineering, and in most disciplines of the College of Arts and Science.

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.

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 Management of Technology. Successful students receive the B.S. from the School of Engineering after their first year at the Owen School and the M.B.A. 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.

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.

Integrated Management of Technology M.Eng/MBA Degree Program

The Master of Engineering degree in Management of Technology, offered by the School of Engineering, requires 30 semester hours of course

work and a project report. To complete these requirements, 18 hours must be taken in the Management of Technology Program; the remainder of the 30-hour requirement may be satisfied with suitable courses taken in the Owen Graduate School of Management.

A student applying to the Owen Graduate School of Management who seeks the Master of Engineering degree need not make a separate application to the School of Engineering for acceptance into the Master of Engineering Program. It is expected that the applicant will have an undergraduate degree in an engineering discipline, a scientific field, mathematics, or computer science. Without this background, the applicant must have studied calculus for one year, physics for at least one semester, and an advanced area of mathematics for at least one semester.

The same procedures would be followed by a student applying initially to the School of Engineering while at the same time completing all requirements for admission to the Owen Graduate School of Management which includes: submission of GMAT scores and required written essays (see OGSM admission criteria for more information).

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 School of Engineering Registrar 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

1

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.

Academic Honors Designation

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

Students who earn grade point averages of 3.25 or higher will graduate *cum laude*; 3.50 or better, *magna cum laude*; 3.75 or better, *summa cum laude*.

Students successfully completing one of the special Honors programs of study also have this designation on their diplomas.

Detailed information concerning the grade point average may be found under *Academic Regulations*.

The Dean's List

The Dean's List for academic excellence is published after each semester. In order to be included on the Dean's List in a given semester, a student must be enrolled for a minimum of 12 graded hours, not receive a grade of *F*, not have missing or temporary grades, and achieve a minimum grade point average of 3.25 for Honors, 3.5 for High Honors, or 4.0 for Highest Honors.

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 with a 3.75 or higher grade point average.

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. The Arthur J. Dyer Jr., A. Max and Susan S. Souby, and Greg A. Andrews awards are considered in this category.

GREG A. ANDREWS MEMORIAL AWARD. Made 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. Awarded by the biomedical engineering faculty to the senior student 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 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 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 the School of Engineering to have excelled in all aspects of mathematics during his or her undergraduate career.

STEIN STONE MEMORIAL AWARD. Endowed 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.

A. MAX AND SUSAN S. SOUBY AWARD. Established by Armand Max Souby Jr., in honor of his father, former alumni secretary of the University, and his mother, first headmistress at Harpeth Hall School. The award is made annually to a graduating senior chemical engineering major.





Academic Regulations

1

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 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 Accreditation Board for Engineering and Technology. 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.

Grading System

A semester hour represents one hour of class lecture (or recitation) or one laboratory period per week in a course taken for a full semester. Work is graded by letter. *A*, *B*, *C*, and *D* are considered passing grades. The grade *E* is conditional and implies a reexamination, whereupon the *E* is changed to *D-* or *F*. The grade *F* signifies failure. A student who withdraws from a course before the date given in the University 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 will be permitted to take a limited number of courses for which they will receive a grade of either *Pass* or *Fail*. Regulations for taking courses on a Pass-Fail basis are:

1. The student must have completed two semesters at Vanderbilt and achieved at least sophomore standing.
2. No more than 9 hours graded *Pass* will be accepted toward the B.S. or B.E. degree.
3. No more than 6 hours of introductory level courses may be included in the total of *Pass* hours.

4. No more than two courses may be taken on a Pass-Fail basis in any one semester.

5. A minimum of 12 hours must be taken on a graded basis in any semester that a Pass-Fail course is taken.

6. No student on academic probation will be allowed to register for any course on a Pass-Fail basis.

7. No required courses may be taken on a Pass-Fail basis.

8. No course taken in the School of Engineering may be taken on a Pass-Fail basis, except as noted below.

The Pass-Fail option applies only to courses classified as open electives, elective courses offered in the College of Arts and Science, and technical electives not considered part of the student's major field as defined by the curriculum committee of the major field.

Credit hours earned in courses taken Pass-Fail are not included in calculating grade point averages. Hours taken on a Pass-Fail basis on which the grade *Fail* is received are included in computation of grade point averages unless removed by repeating the course. A student taking courses on a Pass-Fail basis, however, must still earn the minimum grade point average required of students not taking Pass-Fail courses.

Students electing the Pass-Fail option will be expected to meet all normal course requirements (e.g., reports, papers, projects, examinations, laboratory attendance, etc.) and will be graded in the normal way. At the end of the semester, students enrolled on a Pass-Fail basis will receive a letter grade; all grades of *D-* or above will be recorded as a *Pass*. Instructors will not be informed of the names of students in a course who are registered on a Pass-Fail basis.

Students may register on a Pass-Fail basis or change from a graded basis to Pass-Fail basis until the end of the change period, usually one week after classes begin (exact dates appear in the *Academic Calendar*). Changes from Pass-Fail basis to a graded basis may be made until the date indicated on the *Academic Calendar*.

Transfer students are eligible for Pass-Fail courses after they have been at Vanderbilt for one semester.

E: *Condition*

An instructor may assign the grade *E* in a course other than a laboratory course when in the instructor's judgment the work represents a borderline case and additional evidence is necessary to determine whether the student should be given the grade *D-* or *F*.

The grade *E* must be removed during the regular reexamination period of the student's next semester in residence or it becomes an *F* by default. A student who takes a reexamination to remove an *E* will receive the final grade *D-* or *F* in the course, depending on whether the grade on the second examination is passing or failing. Only one reexamination is allowed in the case of the grade *E*.

M: Missed Final Examination

The grade *M* will be given to a student who missed the final examination and is not known to have defaulted, but the grade *F* will be given to a student who could not have passed the course even with the final examination. Students who are ill at the time of a final examination are expected to notify the Student Services Office before or during the examination period. It is the responsibility of the student who is absent from a final examination to request permission to take a makeup examination during the makeup examination period of the student's next semester in residence. This request, giving the reason for missing the exam, must be submitted to the Office of the Dean before the first day of the next semester, regardless of whether the student is in residence that semester. In the absence of a request for a delayed examination, the *M* grade automatically becomes an *F*, whether or not the student is in residence. If the student has received permission to take a makeup final examination but is not in residence the next semester, completion of the examination may be delayed up to one year from the date of the missed examination, provided also that the examination is taken during one of the regular makeup examination periods. Failure to take the makeup examination within the prescribed time will result in an *F* grade. The grade for a student who misses a final examination and whose work is incomplete in other respects will be recorded as *MI*.

I: Incomplete

When an incomplete grade has been given, it is the student's responsibility to make arrangements to complete the work. An incomplete grade not cleared after one year or before the student graduates becomes an *F*. A course carrying an incomplete grade will not be included in the grade point average for academic progress determination.

Reexamination

For those students who receive an authorized grade of *M* or *E*, the departmental office will arrange makeup examinations during the next semester and will notify the student and the instructor of the time and place of the examination. Reexaminations are normally held during the first ten days of each semester to allow students who also fail the makeup examination to enroll in the same course if offered in the succeeding semester. The Administrative Committee may authorize a makeup examination at some other time, but a special \$50 examination fee will be charged.

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.

Failure of Candidates for Graduation. A candidate for graduation who fails not more than one course in the senior year will be allowed one reexamination, provided all other requirements for graduation have been met. Reexamination for the removal of the grade *F* during any semester of the senior year will be given immediately after the close of the last semester of the student's senior year. This reexamination will result in the grade of either *D-* or *F* in that particular course. Reexamination must be requested through the Office of the Dean.

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 grade *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) major department courses.

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.

Students will be given the grade Pass in courses for which credit is received by examination. These courses will not be used in determining grade point averages.

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. Detailed instructions for registration by computer (OASIS) are given in the *Schedule of Courses*.

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 oral consent of the instructor to attend the class but do not register for the course. No record is kept of the audit. Regular students may audit classes each semester free of charge.

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 and the Associate Dean. 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; the grade 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 pass a minimum of 24 hours and maintain a grade point average of at least 1.7. 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 pass a minimum of 54 hours and maintain a grade point average of at least 1.8. 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 1.9. 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 will result in the cancellation of the scholarship.

Grade Reports

A grade report will be sent to the student at his or her home address 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 undergraduate 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 Graduate School 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, the Associate Dean for Research and Graduate Studies in the Engineering School, and the Dean of the Graduate 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 University Registrar. The University will consider notices or other information delivered if mailed to the address on file in the University Registrar's office.

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

1

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-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.

250 through 299 courses may count for graduate credit if approved by the instructor, the adviser, and the Dean of the Graduate School.

W symbols used in course numbers designate courses that meet departmental writing requirements.

Abbreviations

BME	Biomedical Engineering
CE	Civil Engineering
ChE	Chemical Engineering
CmpE	Computer Engineering
CS	Computer Science
EECE	Electrical Engineering and Computer Engineering
ES	Engineering Science
ENVE	Environmental Engineering
ME	Mechanical Engineering
MSE	Materials Science and Engineering
MT	Management of Technology

E

The Freshman Year

1 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	First-year Accelerated Calculus I	4
	Technology/Society Elective	3
Engineering Science 101	Engineering Freshman Seminar (optional)	1
Engineering Science 140	Introduction to Engineering	3
	Total	14–15

* Chemistry 102a students must also enroll in a recitation section of Chemistry 106a (zero credit).

SPRING SEMESTER

Semester Hours

Chemistry 102b** and Chemistry 104b*‡ or Materials Science 150*‡ Mathematics 155b Physics 116a or 117a* Computer Science 101* or 103*	General Chemistry and General Chemistry Laboratory or Materials Science I First-year Accelerated Calculus II General Physics Programming and Problem Solving	3 1 4 4 4 3
Total		15

* See departmental adviser before making a choice.

‡ Chemical engineering and biomedical engineering majors must take Chemistry 102b and 104b.

**Chemistry 102b students must also enroll in a recitation section of Chemistry 106b (zero credit).

Biomedical Engineering

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Konrad, Anita Mahadevan-Jansen, Michael I. Miga, V. Prasad Shastri

RESEARCH ASSISTANT PROFESSORS Paul A. Harris, Sean P. Brophy, Stacy Klein,
Wei-Chang Lin, Veniamin Sidorov

1 THE Biomedical Engineering Program is designed to prepare students for a wide choice of careers by providing a background in engineering, the humanities, and the physical and life sciences. The undergraduate curriculum serves as a premedical program, preparation for advanced study in biomedical engineering and biomedical sciences, or preparation for a career in the practice of biomedical engineering. Students learn to apply engineering concepts to scientific and practical problems in biology, medicine, and health care. The graduate program prepares students for research and advanced practice in biomedical engineering.

The Department of Biomedical Engineering offers courses of study leading to the B.E., M.S., M.Eng., and Ph.D. degrees.

Undergraduate Honors Program. With approval of the Honors Program director, junior and senior students in biomedical engineering who have achieved a minimum quality point ratio of 3.5 may be accepted into the un-

dergraduate honors program. Students in the program take at least 6 credit hours of 300-level (graduate) BME courses, which can be counted toward the 127-hour undergraduate degree requirements as BME 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 quality point ratio 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. degree in biomedical engineering requires a minimum of 127 semester hours, distributed as follows:

1. Mathematics (15 hours): 155a-b, 175, 196.
2. Basic Science (24 hours): Chemistry 102a-b, 104a-b, Physics 116a-b, Biological Sciences 110/111a, and a second approved biological sciences course with laboratory.
3. Introductory engineering and computing (6 hours): ES 140 and either CS 101 or CS 103.
4. Electrical engineering (7 hours): EECE 112, 213.
5. Biomedical engineering (31 hours): BME 101, 103, 210, 251, 252, 260, 271, 255, 272, 273, 297.
6. Biomedical engineering electives (11 hours) from an approved departmental list.
7. Program electives (9 hours): science, engineering, and math courses from an approved list.
8. Liberal Arts Core (18 hours). BME students may take either a technology-society elective or humanities/social science elective in the freshman year.
9. Open electives (6 hours).

Specimen Curriculum for Biomedical Engineering

SOPHOMORE YEAR		Semester hours	
		FALL	SPRING
BioSci 110a/111a	Introduction to Biological Sciences	4	–
	Biological Sciences course*	–	4
Math 175	Second-year Accelerated Calculus	3	–
Math 196	Differential Equations and Linear Algebra		4
Phys 116b	General Physics	4	–
BME 101	Biomechanics and Biomaterials	3	–
EECE 112	Electrical Engineering Science	–	3
BME 103	Biomedical Materials	–	3
	Liberal Arts Core	3	3
		17	17

JUNIOR YEAR

EECE 213	Network Theory I	4	–
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
	Biomedical Engineering or program elective **	3	4
	Open elective	–	–
	Liberal Arts Core	–	3
		<u>16</u>	<u>17</u>

SENIOR YEAR

BME 255W	Biomedical Engineering Laboratory	3	–
BME 272–273	Design of Medical Engineering Systems I, II	2	3
BME 297	Senior Engineering Design Seminar (fall)	1	–
	Liberal Arts Core	3	3
	Biomedical Engineering or program elective**	7	6
	Open elective	–	3
		<u>16</u>	<u>15</u>

* A second biological sciences course with laboratory must be selected from the departmental list of approved courses.

** BME and program electives must be selected with approval of faculty adviser.

BME 101. Biomechanics and Biomaterials. An introduction to the 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, CE 180, and ME 141. Prerequisite: Physics 116a, Math 155b. [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 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, 102 or equivalent, Math 198. [3]

BME 240a–240b. Undergraduate Research. 240a: 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. 240b: 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–241b. Undergraduate Project in Biomedical Engineering Education. 241a: 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. 241b: 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 251–252. Systems Physiology. An introduction to quantitative physiology from the engineering point of view. Descriptive physiology of several organ systems (heart, lung, kidney, nerve, blood). Mathematical modeling and computer simulation of organ systems and physiologic control mechanisms. Prerequisite: Math 198 or equivalent. [3–3]

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, 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. Medical Imaging. This course, aimed at engineering and physics juniors and seniors, examines the interaction of energy and tissue in medical imaging procedures. Electromagnetic energies in the RF (MRI) and X-ray (X-ray and CT imaging) are covered, as are mechanical energies (medical ultrasound). The mechanisms of absorption, reflection, and scattering are covered, as well as the effect of these properties on such image quality parameters as resolution, contrast, and dynamic range. Students are expected to have a working knowledge of physics, calculus, frequency transforms, impedance, and basic electronics. [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. (Also listed as EECE 263) 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. Prerequisite: Probability and Statistics. FALL. [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. SPRING. [4]

BME 272–273. Design of Biomedical Engineering Devices and Systems I and II. An 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 271, 251, 252. [2–3]

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 281. Biotechnology. Integration of process bioengineering with cellular and molecular biology to describe the manufacture of products derived from mammalian cells. Optimization of oxygen transport and fluid shear stress in bioreactor design for mammalian cells. Biotechnology ethics. Prerequisites: one year of basic biology (Biol 100 and Biol 201 or BSci 110a and BSci 110b or equivalent) and transport phenomena (BME 210 or ChE 230 or equivalent). SPRING. [3]

BME 282. Biotechnology Laboratory. Laboratory experiments in the culture of mammalian cells in bioreactors. Measurement of cell growth and transgene protein expression as a function of bioreactor conditions. Optimization of oxygen transport and fluid shear stress in bioreactor design for mammalian cells. Co-requisites: BME 281. SPRING. [1]

BME 285. Introduction to Biomedical Optics. Fundamental concepts of optics, tissue optics and laser tissue interaction. Instrumentation for light and laser applications. Current applications of light and lasers for diagnosis and therapy in biomedicine. Prerequisite: Senior standing or consent of instructor. Alternating FALL and SPRING. [3]

BME 286. Biomedical Optics Laboratory. Practical experience in basics of operating lasers, using optics, fiberoptics and interferometry. Computer-aided design of optical system and computer simulations of light tissue interaction. Application of optical concepts to biomedical problems. Prerequisites: Senior standing or consent of instructor BME 285 a co-requisite. Alternating FALL and SPRING. [1]

BME 289. Computational Modeling and Analysis in Biomedical Engineering. Survey of current topics in biomedical modeling, including transport, biomechanics, tumor and virus growth dynamics, model-based medical imaging techniques. Mathematical development and analysis of biomedical simulations using numerical techniques for the solution of ordinary and partial differential equations. SPRING. [3]

BME 290a–b–c–d. Special Topics in Biomedical Engineering. 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 312. Advanced Biomedical Instrumentation. A study of the scientific bases and design strategies for advanced medical instrumentation systems. Measurements and diagnosis systems for biomechanical, biochemical, cardiovascular, radiographic and bioelectric phenomena are discussed. Prerequisite: BME 271 or consent of instructor. 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: 101, 210 or equivalent. [3]

BME 314. Bioelectric Signal Processing. Study of the analysis of signals generated by excitable tissues; electrocardiograms, electromyograms, electroencephalograms, and others. Course integrates physiological knowledge with an emphasis on mechanisms of signal

generation, information in waveforms useful for physiologic investigation and medical diagnosis, and processing methodologies for automatically determining this information. Prerequisite: 252 or equivalent, 263. [3]

BME 315. Dynamics of Physiological Systems. Course begins with overview of linear representations of cardiovascular systems and introduction to rudimentary aspects of physiologic control. Attention will then concentrate on topics relating to physiological systems identification. Format will be didactic in part, supplemented by seminar presentations, literature review, and computational problems. Prerequisite: knowledge of Laplace and Fourier Transform methods; 252 or equivalent desired. FALL. [3]

BME 316. Medical Imaging. A survey of medical imaging modalities and applications. Emphasis is on image formation and image analysis. Prerequisite: graduate standing, Physics 116a–b, Math 194, EECE 200, or equivalents. SPRING. [3] (Offered alternate years)

BME 317. Physiological Transport Phenomena. (Also listed as ChE 317) The quantitative description of momentum transport (viscous flow) and mass transport (convection and diffusion) in living systems. Prerequisite: 230 or equivalent courses in fluid dynamics and mass transfer. SPRING. [3]

BME 318. Principles and Applications of Magnetic Resonance Imaging. Physics and engineering of magnetic resonance imaging with an introduction to biomedical applications of MRI. Topics include signal generation, spatial localization, pulse sequence design, Fourier transform reconstructions, image processing, instrumentation, artifacts, MR angiography, cardiac MR, and echo planar imaging. Prerequisite: Physics 116a–b and Math 198, or equivalents; Math 194 or equivalent recommended. SPRING. (Offered alternate years) [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 225a (modern physics) or consent of instructor. SPRING. [3]

BME 329. Advanced Computational Modeling and Analysis in Biomedical Engineering. Current topics in biomedical modeling. Advanced model-based analysis of biomedical systems. Biotransport, biomechanics, cell growth dynamics, and model-based medical imaging techniques. SPRING. [3]

BME 350. Artificial Neural Networks. (Also listed as CS 350 and EECE 350) Theory and practice of parallel distributed processing methods using networks of neuron-like computational devices. Neurobiological inspirations, parallel soft constraint satisfactions, attractor networks, correlational learning, error-correction learning, regularization, vector coding schemes, unsupervised learning, reinforcement learning, Bayesian and information theoretic approaches, network analysis techniques, hardware support, and engineering applications. SPRING. [3]

BME 369. Master's 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. SPRING. [3]

BME 389. Master of Engineering Project.

BME 391–392–393–394. Biomedical Research Seminar. [1–1–1–1]

BME 395a–b–c–d. Special Topics. Different topics taught as a–d graduate level. [1–3]

BME 399. Dissertation Research.

Chemical Engineering

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ASSOCIATE PROFESSOR OF THE PRACTICE Julie E. Sharp

ASSISTANT PROFESSORS R. Robert Balcarcel, Frank M. Bowman, G. Kane Jennings,

Bridget R. Rogers

1 CHEMICAL engineers play key roles in the development and production of pharmaceuticals and bioengineered materials, high strength composites and specialty polymers, semiconductors and microelectronic devices, a wide range of ultrapure fine chemicals, and many other products. Indeed, chemical engineering is essential for the operation of contemporary society. The solution of many of the problems facing society today—e.g., energy, the environment, development of high-performance materials – will involve chemical engineers.

The undergraduate program in chemical engineering equips students to contribute to the solution of these and similar problems. Most graduates find meaningful careers in industry. Others are attracted to government laboratories, universities, and careers 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 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 Chemical Engineering Department offers the Bachelor of Engineering degree and graduate study leading to the M.Eng., M.S., and Ph.D. degrees.

Undergraduate chemical engineering students acquire a solid background in mathematics, chemistry, and physics and take additional upper-level courses in chemistry. The chemical 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 and process control. 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. Selected students are offered the opportunity to carry out individual research projects.

A specimen curriculum for a chemical engineering major, which shows required and elective courses for the standard program, follows. This standard program includes a number of electives. Students, with the consent of their faculty advisers, may choose elective courses that maintain program breadth or may develop a special-interest minor program or concentration within the chemical engineering major. Established minors for chemical engineering students are environmental engineering, materials science and engineering, and management of technology. In addition, a concentration in biotechnology is offered. Double majors may be arranged in consultation with a faculty adviser.

The Chemical Engineering Department recommends chemical engineering 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 de-

velop individually through independent study and research. General requirements are described in the Special Programs chapter. The Chemical Engineering Department requires a minimum overall GPA of 3.5. Acceptance to the program is made at the beginning of, or 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. These may be selected to obtain additional depth in chemical engineering by taking at least 6 hours of 300-level courses or by concentrating in an allied area with graduate courses recommended but not required. A special research project is substituted for ChE 229W in the senior year. A formal written research report is submitted each semester of the senior year.

Facilities. The Chemical 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 adsorption and surface chemistry; biochemical engineering and biotechnology; chemical reaction engineering; environment, including air pollution; materials; process modeling and control.

Computers. A computer facility located in Olin Hall is used in undergraduate and graduate instruction and research. This equipment provides the Chemical Engineering Department with the opportunity to use computer-aided design techniques and computer control of processes. The department makes a special effort to employ computers for use in homework, design problems, and laboratory studies.

Curriculum Requirements

The B.E. degree in chemical engineering requires a minimum of 127 hours course credit. The courses and credits are distributed as follows:

1. Mathematics (17 hours). Required courses: Math 155a, 155b, 175, 198. Math elective: one course selected from Math 194, 218, 226, 229, 234, 261, or 286.

2. Basic Science (28 hours). Required courses: Chemistry 102a, 102b, 220a, 220b, 230, 236; Physics 116a, 116b or 117a, 117b.

3. Engineering Science (3 hours). Required course: ES 140.

4. Computer Science (3 hours). Required course: CS 103.

5. Liberal Arts Core (18 hours). To be selected from the approved lists (see Liberal Arts Core). At least 6 hours must be taken from social sciences and at least 6 hours must be taken from humanities. At least 6 hours of advanced level courses must be included. Three of the 18 hours may be a Technology Society elective, and 3 hours may be in music performance or studio art. Eligible for pass-fail credit.

6. Technical electives (12 hours). At least 6 hours must be selected from a departmental list of engineering courses. Another 6 hours to be selected

from any technical or scientific field with approval of the faculty adviser. These technical electives may be eligible for pass-fail credit.

7. Open electives (6 hours). To be selected with approval of the faculty adviser. Eligible for pass-fail credit.

8. Chemical Engineering required courses (40 hours) ChE 161, 162, 180, 216, 223, 225, 228W, 229W, 230, 231, 232, 233W, 242.

Minor Programs and Concentration

Students who want to pursue one of the approved chemical engineering programs fit course requirements into the elective slots of their standard program.

Environmental Engineering Minor (15 hours). CE 226 and ChE 280, along with three elective courses for the minor (see page 502) A list of recommended courses is available from the department.

Materials Science and Engineering Minor (15 hours). MSE 150 and MSE 250, along with three courses selected from ME 205, MSE 246, 251, 252, 256, and EECE 281, 283, 284. A maximum of two of the last three courses may be applied to the minor.

Management of Technology Minor (15 hours). MT 221, 233, 234, 244, along with one course selected from MT 216, 242, 251, 253, 265, 275, 280.

Biotechnology Concentration (13 hours). BioSci 110a/111a, ChE 282, ChE 283 along with one course selected from BME 281, ChE 246-247, ENVE 272, BioSci 110b.

All elective courses selected must be approved by the student's adviser so that the entire program satisfies the ABET (Accreditation Board for Engineering and Technology) accreditation criteria.

Specimen Curriculum for Chemical Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
Chem 219a–b	Organic Chemistry Laboratory	1	1
Chem 220a–b	Organic Chemistry	3	3
Math 175	Second-year Accelerated Calculus	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
Physics 116b or 117b	General Physics	4	–
ChE 161	Chemical Process Principles	3	–
ChE 162	Chemical Engineering Thermodynamics	–	3
ChE 180	Chemical Engineering Modeling/Simulation	–	3
	Liberal Arts Core	<u>3</u>	<u>3</u>
		17	16
JUNIOR YEAR		FALL	SPRING
Chem 230	Physical Chemistry I	3	–
Chem 236	Physical Chemistry I Laboratory	1	–

ChE 223	Chemical and Phase Equilibria	3	–
ChE 228W	Chemical Engineering Laboratory I	–	3
ChE 230	Introductory Transport Phenomena	3	–
ChE 231	Rate-Based Transport Operations	–	3
ChE 232	Separation Processes	–	3
	Mathematics elective	3	–
	Liberal Arts Core	–	3
	Technical elective *	<u>3</u>	<u>3</u>
		16	15
SENIOR YEAR			
ChE 216	Engineering Economy	3	–
ChE 225	Kinetics	3	–
ChE 229W	Chemical Engineering Laboratory II	3	–
ChE 233W	Chemical Engineering Process Design	–	4
ChE 242	Chemical Process Control	–	3
	Liberal Arts Core	3	3
	Technical elective *	3	3
	Open electives	<u>3</u>	<u>3</u>
		18	16

* Two of the four technical electives to be selected from a departmental list.

ChE 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]

ChE 162. Chemical Engineering Thermodynamics. Application of the laws of thermodynamics to systems involving chemical reaction and phase change. Equations of state are further developed to provide background for chemical process design and simulation. The course is a prerequisite to an extended treatment of phase and chemical equilibria. Prerequisite: 161. SPRING. [3]

ChE 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. A foundation for advanced work in chemical engineering. Prerequisite: ChE 161; Corequisite: Math 198; or consent of instructor. SPRING. [3]

ChE 216. Engineering Economy. (Also listed as CE 216 and MT 216) Economic evaluation and comparison of alternatives, interest, periodic payments, depreciation, criteria, and analytical procedures in investment decision-making, plant feasibility, and cost estimating for design. FALL. [3]

ChE 223. Chemical and Phase Equilibria. Thermodynamic basis and use of chemical and phase equilibrium data and correlations to design chemical processes. Applications to processes of chemical conversion and physical separations involving gases, liquids, and solids. Prerequisite: ChE 162. FALL. [3]

ChE 225. Kinetics. 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. A brief treatment of catalysis and physical and chemical adsorption is given. Prerequisite: Chem 230 and ChE 223. Graduate credit for non-majors. FALL. [3]

ChE 228W–229W. Chemical Engineering Laboratory I, II. Laboratory experiments in momentum, energy, mass transport, kinetics, process dynamics, and control. Interpretation of data for equipment and process design. Writing and oral presentations are emphasized. A technical communications professor provides instruction in written and oral communications. One lecture and one 5-hour laboratory. Prerequisite: 230. Sequence begins in SPRING. [3–3]

ChE 230. Introductory Transport Phenomena. The principles of mass, momentum, and energy transport and their application to analysis and design of engineering systems. Graduate credit for non-majors. Prerequisite: junior standing or consent of instructor. Corequisite: Math 198. FALL. [3]

ChE 231. Rate-Based Transport Operations. Principles and techniques of chemical engineering practice and design. Analysis of chemical engineering processes involving mass transfer, heat transfer, and fluid mechanics. Consideration of safety in the context of process equipment design. Prerequisite: ChE 230 or consent of instructor. SPRING. [3]

ChE 232. Separation Processes. Chemical engineering design and practice of chemical separation processes which reach or approach equilibrium. These processes include distillation, absorption, and extraction. Process simulation of separation processes is required. Consideration of safety and economics in the context of process and equipment design. Prerequisite: ChE 230 or consent of instructor. SPRING. [3]

ChE 233W. Chemical Engineering Process Design. A capstone design course for chemical engineering students. A systematic approach to design and safety practices for chemical process operations. The course involves process design, economic evaluation of alternatives, and a cost and safety analysis of a typical chemical or petroleum process. The use of process simulations is required. A comprehensive design report is required. Prerequisite: 232 and 216 or consent of instructor. SPRING. [4]

ChE 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. Graduate credit for non-majors. Prerequisite: Math 198. SPRING. [3]

ChE 246–247. 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]

ChE 249. Seminar. SPRING. [1]

ChE 280. Atmospheric Pollution. (Also listed as ENVE 280) 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]

ChE 282. Biochemical Engineering. A course in enzyme catalysis, microbial growth, bioreactor design and analysis and product recovery. Emphasis will be placed on enzyme kinetics and fermentation process modeling, applications to models of commercial fermentations, biomass plants, and enzyme engineering. For graduate students and advanced undergraduates. Prerequisite: consent of instructor. [3] (Offered on demand)

ChE 283. Biopharmaceutical Engineering. Production of biopharmaceuticals will be studied within the context of diseases and ailments that may be treated through the production of novel bio-pharmaceuticals. Topics will include molecular bases of disease, drug discov-

ery, drug delivery, cell line generation, nutritional requirements of cell cultures, metabolic engineering of cell lines, and large scale-production plant design of mammalian cell based processes. Prerequisites: junior standing or above. SPRING. [3]

ChE 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]

ChE 290. Special Topics in Chemical Engineering. Prerequisite: consent of instructor. [3] (Offered on demand)

ChE 310a. Applied Mathematics in Chemical Engineering I. Chemical engineering applications of advanced mathematical methods such as LaPlace transforms, calculus of finite differences, and numerical methods, with emphasis on expressing physical situations in mathematical language together with methods used in analysis of experimental data. FALL. [3]

ChE 310b. Applied Mathematics in Chemical Engineering II. A continuation of 310a. [3]

ChE 311a. Advanced Chemical Engineering Thermodynamics I. 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; and other special advanced topics relevant to chemical engineering. SPRING. [3]

ChE 311b. Advanced Chemical Engineering Thermodynamics II. A continuation of 311a. [3] (Offered on demand)

ChE 312a. Transport Phenomena I. The theory of non-equilibrium processes. Development of the analogy between momentum, energy, and mass transport with applications to many common engineering problems. SPRING. [3]

ChE 312b. Transport Phenomena II. A continuation of 312a. [3] (Offered on demand)

ChE 313. Applied Chemical Kinetics. Experimental methods in kinetics. Kinetics of industrial reactions and reactor design. Absorption and catalytic systems are considered. FALL. [3]

ChE 314. Advanced Separation Processes. Current separation operations such as distillation, absorption, extraction, reactive distillation, membrane processes, adsorption, and adsorptive bubble methods. SPRING. [3]

ChE 315a–315b. Systems Analysis for Process Design and Control. The design and control of chemical process plants, including economic optimization under steady state and transient conditions. FALL–SPRING. [3–3]

ChE 316. Differential Operations. An advanced treatment of differential mass transfer and diffusional processes. [3] (Offered on demand)

ChE 317. Physiological Transport Phenomena. (Also listed as BME 317) The quantitative description of momentum transport (convection and diffusion) in living systems. Prerequisite: courses in fluid dynamics and mass transfer. SPRING. [3]

ChE 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]

ChE 325. Polymer Science and Engineering. Macromolecular systems with emphasis on the interrelationship of chemical, physical, and engineering properties and the further relation of these properties to synthesis and application. A basic understanding of organic and of physical chemistry is assumed. SPRING. [3]

ChE 334. Advanced Reaction Kinetics. The optimum design of chemical reactors and modern topics in engineering kinetics. [3] (Offered on demand)

ChE 352. Advanced Physical/Chemical Waste Treatment. (Also listed as EWRE 352.) The theory of mass transfer and chemical reactor technology in advanced wastewater treatment design; physical/chemical processes in municipal and industrial wastewater treatment; evaluation of process alternatives for cost effectiveness. Prerequisite: CE 211, Water and Waste Water Treatment, or consent of instructors. SPRING. [3] (Offered on demand)

ChE 369. Master's Thesis Research.

ChE 389. Master of Engineering Project

ChE 397. Special Topics. [3]

ChE 398. Seminar. [0]

ChE 399. Ph.D. Dissertation Research.

Civil Engineering

E

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1 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, repairing our nation's decaying 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. degree 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. degree 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. degree soon after obtaining the B.E. degree.

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 program in Civil Engineering offers the M.S. and Ph.D. degrees, 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. degrees in the areas of environmental engineering and environ-

mental science, with emphasis on contaminant behavior in the environment, waste management, 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 degree, 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.

Undergraduate Honors Program. Junior and senior students possessing a cumulative grade point average of 3.2 or higher may apply for the Honors Program. If accepted, they will have the opportunity to complete, under the direction of a Departmental faculty member, 3 semester hours of independent study and one summer as an Undergraduate Summer Research Assistant. Honors Program participants may count the Independent Study course towards their CE Professional Electives requirements.

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. degree 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-116b.

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) Biology courses 200 and above; (d) Geology 101&111, 103&113, 225, 226, 230, 240; (e) Physics – all courses above 130 (astronomy not accepted); and (f) Material Science and Engineering – all courses except 209b,c and 210a,b.

4. Computing (3 hours). Required course: CS 103.

5. Engineering fundamentals (30 hours). Required courses: ES 140; CE 160a, 160b, 180, 182, 203, 204, 216; ME 190; MSE 232; CE 247 or CS 255 or Math 216; ME 220a or ChE 162 (students interested in environmental engineering are encouraged to enroll in ChE 162).

6. Liberal Arts Core. Selected from courses in Humanities, Social Science, Music Performance and Studio Art, and Technology-Society. (See Distribution Requirements listed in the Degree Programs in Engineering chapter.) Within the 18-hour requirement, the student must meet the following distribution requirements: (a) at least 6 hours of Humanities; (b) at least 6 hours of Social Science; (c) within the minimum 12 hours of Humanities and Social Science, at least 6 hours must be "advanced." A course is considered advanced if it is 200-level (in the College of Arts and Science) or if it is the student's second course in a specific discipline. History courses above 153 and Religious Studies courses above 115 are considered advanced. (d) A maximum of 3 hours of Music Performance and Studio Art may be taken to satisfy the Liberal Arts Core. Additional courses in Music Performance and Studio Art may be taken as open electives. (e) A maximum of 3 hours of Technology-Society electives may be taken to satisfy the Liberal Arts Core. The Engineering Science major requires 3 hours of Technology-Society electives.

7. Open electives (6 hours).

8. Technical electives (6 hours). To be selected from the following list of technical and scientific subjects: (a) all courses in BME, ChE, CE, ENVE, EE, ME, and MT 233, 242; (b) all courses acceptable as Science electives as indicated above; and (c) Math 194 and all Math courses 210 and above, except 218 and 252.

9. Civil Engineering Core (27 hours). Required courses: CE 205, 225, 226, 227, 232, 235, 240, 286, and CE 252a or CE 252b. In addition, all students must complete CE 248a-b, a major meaningful and comprehensive project design course.

10. Civil Engineering Professional Electives (6 hours). To be selected from any non-core CE or ENVE course offerings; at least one of the 2 courses must be from courses numbered > 250.

Students are responsible for obtaining a course checklist from the departmental administrative assistant, placing it in their departmental file,

and updating it each semester with their faculty advisor. This list must be kept up to date, with all variances documented in writing, because it will be used to determine eligibility for graduation. A student must submit a completed checklist to the department chair by 15 March in order to qualify for May graduation.

Specimen Curriculum for Civil Engineering

		Semester hours	
SOPHOMORE YEAR		FALL	SPRING
Math 175	Second-year Accelerated Calculus	3	–
Physics 116b	General Physics	4	–
CE 160a	Civil and Environmental Eng. Information Systems I	2	–
CE 180	Statics	3	–
CE 225	Intro. to Transportation Systems Engineering	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
CE 160b	Civil and Environmental Eng. Information Systems II	–	2
ME 190	Dynamics	–	3
CE 182	Mechanics of Materials	–	3
	Thermodynamics (ME 220a or ChE 162)	–	3
	Liberal Arts Core	–	3
		15	17
JUNIOR YEAR		FALL	SPRING
CE 203	Fluid Mechanics	3	–
CE 204	Fluid Mechanics Laboratory	1	–
CE 226	Introduction to 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	–
CE 205W	Civil and Environmental Engineering Laboratory	–	2
CE 216	Engineering Economics	–	3
CE 227	Introduction to Water Resources Engineering	–	3
CE 235	Structural Design	–	3
CE 246	Probability and Statistics	–	3
	or Numerical Methods	–	3
	Liberal Arts Core	–	3
		17	17
SENIOR YEAR		FALL	SPRING
CE 248a	Civil and Environmental Engineering Design I	1	–
CE 289	Construction Project Management	3	–
	CE Professional Elective	3	–
	Technical Elective	3	–
	Open Elective	3	–
	Liberal Arts Core	3	–
CE 248b	Civil and Environmental Engineering Design II	–	2
CE 252b	Civil and Environmental Engineering Seminar	–	1
	CE Professional Elective	–	3
	Technical Elective	–	3
	Open Elective	–	3
	Liberal Arts Core	–	3
		16	15

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, comprised by 6 hours of required courses and 9 hours of electives, chosen from the following list:

Required Courses (6 hours)

CE 226 – Introduction to Environmental Engineering

ENVE 271 – Environmental Chemistry or ENVE/CHE 280 – Atmospheric Pollution

Elective Courses (9 hours)

CE 212 - Hydrology

CE 227 - Introduction to Water Resources Engineering

CE 259 - Geographic Information Systems

ENVE 260 - Solid and Hazardous Waste Management

ENVE 264 - Environmental Assessments

ENVE 269 - Radiological Aspects of Environmental Engineering

ENVE 270 - Environmental Thermodynamics, Kinetics, and Mass Transfer

ENVE 271 - Environmental Chemistry

ENVE 272 - Biological Unit Processes

ENVE 273 - Environmental Characterization and Analysis

ENVE 275 - Environmental Risk Management

ENVE 276 - Groundwater Hydrology

ENVE 277 - Physical/Chemical Unit Processes

ENVE 280 - Atmospheric Pollution

Minor in Management of Technology. A minor in management of technology 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 Management of Technology minor is available on page 534.

Civil Engineering

CE 160a. Civil & 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, engineering drawings, application of spreadsheets in civil and environmental engineering. Software tools introduced in this course will facilitate communication of engineering concepts and models via modern computer technology. FALL. [2]

CE 160b. Civil and Environmental 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, GIS 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 160a. SPRING. [2]

CE 180. Statics. The elements of statics with application to systems of forces in two and three dimensions (particles and rigid bodies), resultants, equivalent systems, and equilibria. Vector notation is introduced. Friction. Credit is offered for only one of CE 180, ME 141, and 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 or ME 141. FALL, SPRING, SUMMER. [3]

CE 200a–200b–200c. 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 203. Fluid Mechanics. (Also listed as ME 224) Physical properties of fluids, fluid statics; equations of conservation of mass, energy, and momentum; dimensional analysis and similarity; principles of real fluid flows: boundary layer effects, flow through pipes, flow in open channels, drag forces on bodies. Prerequisite: CE 180 or ME 141; ME 190; Math 198. Graduate credit for students in geology. FALL, SUMMER. [3]

CE 204. Fluid Mechanics Laboratory. Demonstrations and experimental investigations of fluid flow behavior. Topics include fluid property measurements; fluid statics; mass, momentum and energy conservation laws; friction losses; lift and drag forces; and flow measurement techniques. 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 212. Hydrology. The hydrologic cycle, study of precipitation, evapotranspiration, stream flow, flood flow, ground water, flood routing, snowmelt, and hydrometeorology. Prerequisite: CE 203. FALL. [3]

CE 216. Engineering Economy. (Also listed as ChE 216 and MT 216) Economic evaluation and comparison of alternatives: interest, periodic payments, depreciation, criteria and analytical procedures in investment decision making, plant feasibility, and cost estimating. FALL, SPRING. [3]

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. Introduction to 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. Prerequisites: Chem 101a, Phys 116a,b, Math 198, CE 203. FALL. [3]

CE 227. Introduction to Water Resources Engineering. Introduction to engineering of water resources and sewerage systems that control the quantity, quality, timing, and distri-

bution 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. Prerequisites: Chem 101a, 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. Study of origin, formation, classification, identification, and engineering properties of soils. Discussions on index properties, soil moisture, soil structure, compressibility, shear strength, stress analysis, lateral pressures, and foundation capacities. Graduate credit for geology majors. Prerequisite: CE 182 or consent of instructor. FALL. [3]

CE 242. Foundation Analysis and Design. Study of shallow and deep foundation elements and systems for civil engineering structures. Prerequisite: CE 240 or equivalent. SPRING. [3]

CE 247. Probabilistic Methods in Engineering Design. Applications of probability and statistics to engineering problems. Review of basic probability concepts, random variables, probability distributions, estimation of distribution parameters (point estimation and confidence intervals), determination of distribution models, hypothesis testing, correlation and regression analysis, Monte Carlo simulation, and probabilistic design. Prerequisite: Math 170b or Math 175, CE 246, and ES 130. FALL. [3]

CE 248a. 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. [2] (Credit hours change to [1] in Fall 2004.)

CE 248b. Civil Engineering Design II. A continuation of CE 248a. The course involves an oral presentation and the submittal of a final design report. Prerequisite: CE 248a. SPRING. [2]

CE 252a–252b. Civil and Environmental Engineering Seminar. A two-part seminar series 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. [1-1]

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. 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 applications. 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. Prerequisite: CE 235 or consent of instructor. FALL. [3]

CE 287. Construction Estimating. Theory and application of the fundamentals of Construction Estimating. Estimating is a comprehensive process involving estimating of material, labor, and equipment quantities, including costing and pricing a project. Enhances students' ability to understand and apply estimating practices using real-world examples and project estimating software. Prerequisite: CE 286. SPRING. [3]

CE 288. Construction Planning and Scheduling. Theory and application of the fundamentals of Construction Planning and Scheduling. Enhances students' ability to understand and apply management practices including: process planning; directing, costing; resource allocation; and controlling all aspects of the construction operations and resources, from pre-construction through operation and maintenance using real-world examples and project scheduling software. Prerequisite: CE 286. SPRING. [3]

CE 290. Reliability and Risk Case Studies. Multi-disciplinary review of case studies in reliability and risk assessment of engineering systems, from a wide range of perspectives such as engineering design, environmental impact, regulatory impact, socio-economic consequences, and legal liability. Infrastructure and environmental systems; mechanical, automotive, and aerospace systems; network systems (power distribution, water and sewage systems, transportation etc.); manufacturing processes; and electronic and software systems. Evaluation of reliability solutions based on achievable goals, scientific basis, technical feasibility, economic impact, political feasibility and policy implications. Prerequisite: junior standing or consent of instructor. FALL. [2]

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 like 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 uni-

directional 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 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 309. Structural Dynamics. Analysis of single- and multi-degree of freedom systems. Modal superposition method. Time and frequency domain analyses. Numerical methods and introduction to nonlinear dynamic analysis. Applications to structures subject to earthquake and impact forces. Prerequisite: CE 301 or consent of instructor. SPRING. [3]

CE 310. Probabilistic Methods in Engineering Design. (Also listed as MT 312) 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 CS 257, CE 310 or MT 312. SPRING. [3]

CE 313. Advanced Reliability Methods. Computational methods for probabilistic analysis and design of modern engineering systems. Emphasis on system reliability, nonlinear rela-

bility 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] (Offered on demand)

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 like 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] (Offered on demand)

CE 325a–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 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] (Offered on demand)

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] (Offered on demand)

CE 359. Emerging Information Systems Applications. (Also listed as MT 359) 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–371b. Reliability and Risk Engineering Seminar. Seminars by expert speakers will 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. [1-1]

CE 389. Master of Engineering Project.

CE 399. Ph.D. Dissertation Research.

Environmental Engineering

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 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 269. Radiological Aspects of Environmental Engineering. Characterization and detection of environmental radiation; biological effects of radiation; hazards, control, and disposal of radioactive wastes; use of radioactive tracers in environmental studies. SPRING of alternate years. [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 and 102b, Math 198, CE 226 or equivalent, and senior standing or consent of instructor. FALL. [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 and 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 275. Environmental Risk Management. (Also listed as MT 265) Development of environmental safety programs for technological operations. Focus on defining an environmental risk management process and program implementation, performing risk assessments, determining and selecting appropriate risk reduction strategies, and influencing risk management decisions internally and externally. Extensive use of case studies drawn from the chemical and energy-producing industries. SPRING. [3]

ENVE 276. Ground Water 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. Students cannot receive credit for both ENVE 276 and Geology 257. 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. Prerequisites: CE 226 or equivalent and senior standing or above. Spring. [3]

ENVE 280. Atmospheric Pollution. (Also listed as ChE 280) 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]

ENVE 300. Water Quality Management. Effects of physical, chemical, biological, and physiological pollutants in streams, reservoirs, and estuaries; fate of pollutants in the environment; water quality criteria; water quality management methodology. Biological aspects of water quality control. 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–325b–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 369. Master's Thesis Research.

ENVE 389. Master of Engineering Project.

ENVE 399. Ph.D. Dissertation Research.

Computer Engineering

DIRECTOR A. B. Bonds

PROFESSOR EMERITUS Arthur J. Brodersen

PROFESSORS Gautam Biswas, A. B. Bonds, James A. Cadzow, Benoit M. Dawant,

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ASSISTANT PROFESSORS Julie A. Adams, Robert E. Bodenheimer, Jr., Aniruddha S. Gokhale, T. John Koo, Xenofon D. Koutsoukos, David Noelle, William H. Robinson, Nilanjan Sarkar

1 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. The course of study leads to a Bachelor of Engineering degree.

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. degree 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, Physics 116b, MSE 150 (or Chemistry 102b).
3. Engineering Fundamentals (6 hours). Required courses: ES 140, ES 210W.
4. Culminating Design Experience (7 hours). Required courses: EECE 295, EECE 296, EECE 297.
5. Computer Engineering Core (20 hours). Required courses: EECE 112, 116, 218; CS 101, 201, 231.
6. Computer Engineering Electives (21 hours). Defined by a structure that includes the six Computer Engineering Areas of Concentration listed below. Students must complete at least two courses in each of two areas of concentration. At least one of the areas must be Embedded Architectures (Area 1) including EECE 276 or Computer Systems (Area 2) including CS 281. 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 to total 21 hours.

Computer Engineering Areas of Concentration

Embedded Architectures (area 1)	Computer Systems (area 2)	VLSI/ Electronics (area 3)	Intell Systems/ Robotics (area 4)	Signal/Image Processing (area 5)	Networking & Communications (area 6)
EECE 276 (DE)	CS 281	EECE 235	CS 260	EECE 214	EECS 252
EECE 256 (DE)	CS 270 (DE)	EECE 277 (DE)	CS 269 (DE)	CS 258	EECE 261
EECS 272 (DE)	CS 277 (DE)	EECE 280 (DE)	EECE 253 (DE)	EECE 252	EECE 262
EECE 273 (DE)	CS 276 (DE)	EECE 283	EECE 254	EECE 253 (DE)	CS 283
EECE 277 (DE)	CS 282 (DE)	EECE 284	EECE 257	EECE 254	
EECE 279 (DE)	CS 284 (DE)	EECE 285 (DE)	EECE 258	EECE 256 (DE)	
CS 278 (DE)	EECE 273 (DE)	EECE 286 (DE)	EECE 271	EECE 263	
CS 279 (DE)	EECE 274 (DE)				
	CS 274 (DE)				
	CS 278 (DE)				
	CS 279 (DE)				

(DE) designates a Domain Expertise course

7. Liberal Arts Core (18 hours). To be selected from the approved lists (see Distribution Requirements).
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 240a-240b, 241a-241b)
 ChE (except 216)
 CE (except 216)
 CS (except 103, 150, 151, 255, 257)
 EECE (hours above basic requirement in sections 5 and 6 above)
 ME
 MSE (except 150)
 MT 233
- b. (0-9 hours). Up to 9 hours may be taken from this list of optional technical electives.
- CS 255, 257
 ChE 216 or CE 216 or MT 216
 MSE 150 (if Chemistry 102b is used as a basic science)
 MT 221, 244
 Astronomy (except 102, 130)
 Biology
 Biological Sciences
 Chemistry (except 101a-b, 102a-b)
 Geology (except 100, 102)
 Mathematics above 194 (except 198, 252)
 Molecular Biology
 Physics (except courses number 122 or below and 210)
 Neuroscience 201, 255
 Psychology 201, 208, 209, 234, 236, 269
9. Open Elective (3 hours).

Specimen Curriculum for Computer Engineering

		Semester hours	
		FALL	SPRING
FRESHMAN YEAR			
EECE 116†	Digital Logic		4
	Other freshman courses (see the engineering freshman-year specimen curriculum)	14	11
		14	15
SOPHOMORE YEAR			
Math 175	Second-year Accelerated Calculus	3	–
Math 196	Differential Equations and Linear Algebra	–	4
Physics 116b	General Physics	4	–
MSE 150 †	Materials Science I	–	4
EECE 112	Electrical Engineering Science	3	–
EECE 218	Microcontrollers I	–	4
CS 201	Program Design and Data Structures	3	–
CS 231	Computer Organization	–	3
	Liberal Arts Core	3	3
		16	18

JUNIOR YEAR

Math 216	Probability and Statistics for EECE	–	3
ES 210W	Technical Communications	3	–
EECE 276	Microprocessors and Microcontrollers II	4	–
CS 281	Principles of Operating Systems I	3	–
	CmpE Program Elective ‡	3	6
	Liberal Arts Core	–	6
	Technical Electives	3	3
		16	18

SENIOR YEAR

EECE 295	Project Management for EECE	3	–
EECE 296	EECE Design	–	3
EECE 297	Senior Engineering Design Seminar	1	–
	Cmp E Program Electives ‡	6	3
	Liberal Arts Core	–	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.

CmpE 203–204. Independent Study. Readings or projects on basic topics in computer engineering or related fields under the supervision of staff. Consent of instructor required. No more than 6 hours may be applied towards graduation. [Variable credit: 1–3 each semester]

CmpE 291–292. Special Topics. [Variable credit: 1–3 each semester] Offered on demand.

Computer Science

DIRECTOR OF UNDERGRADUATE STUDIES Lawrence W. Dowdy

DIRECTOR OF GRADUATE STUDIES Gautam Biswas

PROFESSORS EMERITI Patrick C. Fischer, William H. Rowan Jr., Horace E. Williams

PROFESSOR EMERITA Charlotte F. Fischer

PROFESSORS Gautam Biswas, Benoit M. Dawant, Lawrence W. Dowdy, J. Michael Fitzpatrick, Douglas C. Schmidt, Janos Sztipanovits

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ASSISTANT PROFESSORS Julie A. Adams, Robert E. Bodenheimer, Jr., Aniruddha S.

Gokhale, T. John Koo, Xenofon D. Koutsoukos, David Noelle

LECTURER Jeanne C. Milostan

1 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.

In addition to Bachelor of Science, degrees of 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. Students interested in the honors program should apply to the department chair. See the *Special Programs* chapter for general requirements of the professional honors program in computer science.

Curriculum Requirements

The B.S. degree in computer science requires a minimum of 122 hours, with distribution as follows:

1. Mathematics (16–22 hours). Required components:

(a) A Calculus sequence (7–12 hours).

Selected from the following:

- 150a, 150b, 170a, 170b

- 155a, 155b, 175

- 165, 175

- 165, 205a, 205b

(b) Linear algebra (3–4 hours): 194, 196, 204, or 205a.

(c) Statistics/Probability (3 hours): 216, 218, or 247.

Elective course (3 hours):

Selected from: 198, 200, 208, 215, 219, 221, 223, 226,
247, 250, 253, 274, 275, 288.

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)

- Biology (100, 218, 219)

- Chemistry (102a and 104a, 102b and 104b)

- Geology (101 and 111)

- Honors (185a, 185b)

- Materials Science and Engineering 150

- Physics (116a–116b, 117a–117b, 121a–121b)

Recommended: Chemistry 102a and 104a, Physics 116a–116b, or 117a–117b.

3. Fundamentals of Computing (3 hours). CS 150 or ES 140.

4. Writing Component (3 hours). ES 210W or one designated "W" course, excluding English 100W.

5. Liberal Arts Core (18 hours). To be selected from the approved lists (see Distribution Requirements). Three hours may be in a technology and society elective.

6. Computer Science Core (26 hours).

- Digital Logic Fundamentals: EECE 116.
- Discrete Mathematics/Structures: CS 212 or Math 215.
- Introductory Programming and Problem Solving: CS 101.
- Intermediate Software, Systems, and Theory: CS 201, CS 231, CS 250, CS 270, and CS 281.

7. Advanced Computer Science (18 hours). Students are required to take 18 additional hours of courses selected from the following lists: (a) Computer Science courses numbered CS 242 or above, and (b) the following EECE courses: 253, 254, 271, 272, 273, 276, and 279. At least one course (i.e., 3 hours) must be a designated project course selected from CS 258, 265, 269, 276, 279, 282, 283, or 284. CS 240 (Undergraduate Research) may be substituted under special circumstances with departmental and adviser approval.

8. Broadening Electives (9 hours). Adviser approval must be obtained for broadening electives. In particular, broadening electives are to be used for further study in areas that enhance majors as computer scientists. Computer science and computer engineering courses may not be used as broadening electives. Additional humanities-social science electives, international studies, business related courses, enhanced technical electives, or courses that lead to a double major are especially encouraged.

9. Open Electives (11–17 hours).

(Note: In the event that a given course could be used to satisfy, or partially satisfy, requirements in more than one of the above categories, the student and adviser must choose the category to which the course will apply. That is, no course may be "double-counted.")

Pass-Fail Courses. The only courses that computer science students may choose to take pass-fail are those in items 5, 8, and 9 above.

Specimen Curriculum for Computer Science

		Semester hours	
FRESHMAN YEAR		FALL	SPRING
Chem 102a	General Chemistry	3	–
Chem 104a	General Chemistry Laboratory	1	–
Physics 116a	General Physics	–	4
Math 155a	First Year Accelerated Calculus	4	–
Math 155b	First Year Accelerated Calculus	–	4
	Computing Basics (e.g., CS 150 or ES 140)	3	–
CS 101	Programming and Problem Solving	–	3
	Open Electives	3	–
	Liberal Arts Core	–	3
		14	14

SOPHOMORE YEAR		FALL	SPRING
Physics 116b	General Physics	4	–
Math 175	Second-Year Accelerated Calculus	3	–
Math 218	Introduction to Math Statistics	–	3
EECE 116	Digital Logic	4	–
CS 201	Program Design and Data Structures	3	–
CS 212	Discrete Structures	–	3
CS 231	Computer Organization	–	3
	Liberal Arts Core	–	3
	Broadening Elective	–	3
		14	15
JUNIOR YEAR			
Math 194	Methods of Linear Algebra	3	–
	Math Elective (e.g., Math 250)	–	3
ES 210W	Technical Communications	3	–
CS 250	Algorithms	3	–
CS 270	Programming Languages	–	4
CS 281	Operating Systems Principles I	3	–
	Advanced Computer Science Elective	–	6
	Liberal Arts Core	3	3
	Broadening Elective	3	–
		18	16
SENIOR YEAR		FALL	SPRING
	Advanced Computer Science Electives	3	6
	Advanced Computer Project Course	3	–
	Liberal Arts Core	3	3
	Broadening Electives	3	–
	Open Electives	3	7
		15	16

Second Major in Computer Science for non-Engineering Students

The second major in computer science for students enrolled outside the School of Engineering requires 35 hours as follows:

1. Introductory Programming and Problem Solving: CS 101	3
2. Discrete Mathematics/Structures: CS 212	3
3. Digital Logic Fundamentals: EECE 116	4
4. Intermediate Computer Concepts: CS 201, CS 231, CS 250, CS 270, CS 281	16
5. Project course: selected from CS 258, CS 265, CS 269, CS 276, CS 279, CS 282, CS 283, CS 284	3
6. Electives: selected from CS courses numbered CS 240 or above	6
Total Hours:	35

Courses taken toward the second major may not be taken pass/fail.

Computer Science Minor

The minor in computer science requires 22 hours of computer science courses as follows:

1. Programming: CS 101	3
2. Discrete Structures: CS 212	3
3. Digital Logic Fundamentals: EECE 116	4
4. Intermediate Computer Concepts: CS 201 and 231	6
5. Two additional CS courses numbered 250 or above	<u>6</u>

Total Hours: 22

Courses taken toward the minor may not be taken pass/fail.

CS 101. Programming and Problem Solving. An intensive introduction to algorithm development and problem solving on the computer. Intended for engineering majors and others who already have some familiarity with computer programming. 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. SPRING. [3]

CS 150. Introduction to Computing and Programming. An introduction to the use of computers, applications, and programming. Intended for students with little or no computer or programming experience. Problem definition, algorithm design, and problem solving using the computer. Teamwork. Laboratory experience. Credit given for only one of CS 150 and ES 140. 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. Technology-society elective. 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: 101. FALL, 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: 201; corequisite: EECE 116. FALL, SPRING. [3]

CS 240a–240b. Undergraduate Research. Open to qualified majors with consent of instructor and adviser. No more than 3 hours may be counted towards the computer science major. Prerequisite: 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: 201 and 212. 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. Undecidability. The Chomsky hierarchy. Computational complexity. Prerequisite: 212. SPRING. [3]

CS 253. Image Processing. (Also listed as EECE 253) The theory of signals and systems is extended to two dimensions. Coverage includes filtering, 2-DFFTs, edge detection, and image enhancement. Three lectures and one laboratory period. FALL. [4]

CS 255. Introduction to Numerical Mathematics. (Also listed as Math 226) Numerical solution of linear and nonlinear equations, interpolation, and polynomial 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. Prerequisite: computer programming and linear algebra. FALL, SPRING. [3]

CS 257. Linear Optimization. (Also listed as Math 288) 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. Prerequisites: linear algebra and computer programming. 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: Linear Algebra, 201, junior standing. FALL. [3]

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: 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: 250 and 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: 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: 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: 231. FALL, SPRING. [4]

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. Prerequisites: CS 201, Math 194 or 198, Math 216 or 218. 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: 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: 270. 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: 278. SPRING. [3]

CS 281. Principles of Operating Systems I. Overview of goals of operating systems. Introduction to the 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 implementation of parallel processes on conventional computers. Introduction of notions of virtual memory, paging, protection of shared and non-shared information. Structures of files of data in secondary storage. Security issues. Case studies. Prerequisite: 231. 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: 281. SPRING. [3]

CS 283. Computer Networks. Computer communications, network architectures, protocol hierarchies, and the open systems interconnection model. Modeling, analysis and specification of protocols. Wide area networks and local area networks including rings, buses, and contention networks. Prerequisite: 281. SPRING. [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: 281. SPRING. [3]

CS 291–292. 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: 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: 310 or Math 275. FALL. [3]

CS 312. Computational Learning Theory. An overview of computational learning theory and problems of current interest. Topics include: the PAC model of learning, exact learning with queries, Occam's razor, the Vapnik-Chervonenkis dimension, techniques for proving positive and negative results for learnability, and a study of existing learning algorithms. Prerequisite: consent of instructor. FALL. [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: 310 or consent of instructor. [3]

CS 340. Computational Cognitive Neuroscience. Design and analysis of computational simulations of human behavior and brain function. Information processing accounts of the neural basis of cognition. General connectionist modeling which address the biophysics of active membranes, computations performed by individual neurons, activation dynamics produced by recurrent connectivity and lateral inhibition, mechanisms driving synaptic plasticity, and computational role of neurotransmitter systems. Neural network models of perception, attention, learning, memory, language, categorization, and cognitive control. SPRING. [3]

CS 343. High-Performance Computing for Engineers. (Also listed as ME 343) Introduction to high-performance computing. Engineering applications. Focus on high-speed cluster computing. Class project applying high-performance computing to various research topics. SPRING. [3]

CS 350. Artificial Neural Networks. (Also listed as BME 350 and EECE 350) 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: 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 357. Advanced Image Processing. (Also listed as EECE 357) Techniques of image processing. Topics include image formation, digitization, linear shift-invariant processing, feature detection, and motion. Prerequisite: Math 175; programming experience. FALL. [3]

CS 358. Computer Vision. (Also listed as EECE 358) 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: 357 or 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: 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: 260, 360, or equivalent. SPRING. [3]

CS 364. Intelligent Learning Environments. (Also listed as EECE 355) 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: 260,360, or equivalent. SPRING. [3]

CS 367. Advanced Reasoning Techniques in Artificial Intelligence. Model-based and qualitative reasoning methodologies. Modeling paradigms covered include structure-behavior models, component connection and compositional modeling, and functional-causal models of physical systems. The spectrum of reasoning and simulation methodologies from qualitative to quantitative analysis are discussed. Applications include design of engineering systems and diagnosis of complex engineering and physiological systems. Prerequisite: 360 or equivalent or permission of instructor. SPRING. [3]

CS 369. Master's Thesis Research. [0]

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 379. 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 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: 281. FALL. [3]

CS 382. Topics in Operating Systems. Prerequisite: 281. SPRING. [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: 281 or 381. SPRING. [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: 381 or consent of instructor. SPRING. [3]

CS 387. Topics in Software Engineering. Topics may include software development and maintenance environments, software metrics, correctness proofs, Ada as a case study in software engineering, and artificial intelligence aspects of software engineering. Prerequisite: 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 389. Master of Engineering Project.

CS 390. Individual Studies. Offered each term. [1–3]

CS 391–392. Seminar. [1–3 each semester]

CS 395–396. Special Topics. [3–3]

CS 399. Ph.D. Dissertation Research.

Electrical Engineering

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ASSOCIATE PROFESSORS Bharat L. Bhuva, Gábor Karsai, Richard Alan Peters II, Francis M. Wells, D. Mitchell Wilkes, James E. Wittig

RESEARCH ASSOCIATE PROFESSOR William T. Holman

ASSISTANT PROFESSOR William H. Robinson

RESEARCH ASSISTANT PROFESSORS Theodore Bapty, Akos Ledeczki, Miklos Maroti, Sandeep Neema, Gyula Simon

1 THE electrical engineer has been primarily responsible for the computer revolution that society is experiencing. The development of large-scale integrated circuits has led to the development of computers in a broad range of sizes and 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, communications, 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, instrumentation, and electromechanical energy conversion. In addition, several specialized facilities are available for graduate research: the multiprocessing laboratory for intelligent instrumentation, the computer-aided design laboratory, the image processing laboratory, the microelectronics parameter extraction facility and space electronics research laboratories, the robotics and automation laboratory, and several electrophysiological data processing laboratories for analyzing and interpreting various electrophysiological signals in biomedical research.

The work in electrical and computer engineering is supported by a variety of computers. An array of IBM PCs and SUN and HP workstations is available via a high speed network. Vanderbilt is one of the founding partners in the Internet II initiative.

Curriculum Requirements

The B.E. degree 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, Chemistry 104a, Physics 116a, Physics 116b, MSE 150 (or Chemistry 102b for some double majors).
3. Engineering Fundamentals (6 hours). Required courses: ES 140, 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, 213, 214, 233, 235.
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 280 (DE)	EECE 252	EECE 254	EECE 252
EECE 256 (DE)	EECE 283	EECE 253 (DE)	EECE 257	EECE 261
EECE 266	EECE 284	EECE 254	EECE 258	EECE 262
EECE 271	EECE 285 (DE)	EECE 256 (DE)	EECE 271	
EECE 272 (DE)	EECE 286	EECE 263		
EECE 274 (DE)		CS 258		
EECE 276 (DE)				
EECE 277 (DE)				
EECE 279 (DE)				
EECE 285 (DE)				

(DE) designates a Domain Expertise course

7. Liberal Arts Core (18 hours). To be selected from the approved lists (see Distribution Requirements).

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 240a-240b, 241a-241b)

ChE (except 216)

CE (except 216)

CS (except 101, 103, 150, 151, 255, 257)

EECE (hours above basic requirement of section 5 and 6 above)

ME

MSE (except 150)

MT 233

b. (0–9 hours). Up to 9 hours may be taken from this list of optional technical electives.

CS 255, 257

ChE 216 or CE 216 or MT 216

MSE 150 (if Chemistry 102b is used as a basic science)

MT 221, 244

Astronomy (except 102, 130)

Biology

Biological Sciences

Chemistry (except 101a–b, 102a–b)

Geology (except 100, 102)

Mathematics above 194 (except 198, 252)

Molecular Biology

Physics (except courses numbered 122 or below and 210)

Neuroscience 201, 255

Psychology 201, 208, 209, 234, 236, 269

9. Open Elective (3 hours).

Double majors have special curricula that require more than 128 hours and a different distribution of electives. See the EECE double major adviser for these curricula.

Specimen Curriculum for Electrical Engineering

FRESHMAN YEAR †		Semester hours	
		FALL	SPRING
EECE 116 †	Digital Logic	–	4
	Other Freshman Courses (see the engr. freshman-year specimen curriculum)	14	12
		14	16
SOPHOMORE YEAR			
Math 175	Second-year Accelerated Calculus	3	–
Math 196	Differential Equations and Linear Algebra	–	4
Physics 116b	General Physics	4	–
CS 103 or 101 †	Programming and Problem Solving	3	–
EECE 112	Electrical Engineering Science	3	–
EECE 213	Network Theory I	–	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	Fundamentals of Communications and Control	3	–
EECE 233	Electromagnetics	3	–
EECE 235	Electronic Circuits 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 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.

EECE 112. Electrical Engineering Science. Development of basic electrical circuit element models, signal representations, and methods of circuit analysis. Matrix methods and computer techniques are emphasized. Demonstrations of physical components, measure-

ment techniques, and transient phenomena are presented. 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. Three lectures and one laboratory period. FALL, SPRING. [4]

EECE 203–204. 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. Network Theory I. Steady-state and transient analysis of electrical networks with emphasis on LaPlace transform methods and pole-zero concepts. Three lectures and one laboratory period. Prerequisite: 112, Physics 116b. Corequisite: Math 196. FALL, SPRING. [4]

EECE 214. Fundamentals of Communications and Control. Covers the fundamental signal and system 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: 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. Three lectures and one laboratory. Prerequisite: EECE 116, CS 101. SPRING. [4]

EECE 225. The Visual System. (Also listed as Psychology 236) Introduction to physiological optics, retinal anatomy, physiology, neurochemistry, color vision, brain processing, and clinical problems associated with the visual system. For students below senior standing, permission of instructor required. SPRING. [3]

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 except for electrical engineers. Prerequisite: Physics 116b; corequisite: Math 196. FALL. [3]

EECE 235. Electronic Circuits 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. No graduate credit for electrical engineers. Three lectures and one laboratory period. Prerequisite: 213, 116. FALL, SPRING. [4]

EECE 252. Signal Processing and Communications. AM and FM modulation. Also, advanced topics in signal processing are treated. Prerequisite: 214. SPRING. [3]

EECE 253. Image Processing. (Also listed as CS 253) 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: 253. SPRING. [3]

EECE 256. DSP Hardware. Applications of Digital Signal Processing (DSP) chips to sampling, digital filtering, FFTs, etc. Three lectures and one laboratory period. Prerequisite: 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: 213. 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: 257. SPRING. [3]

EECE 261. Introduction to Voice/Data Networks. Overview of voice/data wide area networking (WAN) technologies, including the implementation of WAN designs. Prerequisites: Math 155 a/b, Physics 116a/b or equivalent. FALL. [3].

EECE 262. Introduction to Local Area Networks and Internetworking. Overview of Local Area Network (LAN) technology, internetworking, and selected higher layer applications. Common local area networking protocols, internetworking (bridging and routing), common routing protocols, dynamic routing algorithms, selected layer 4 applications, domain name system, and dynamic host configuration protocol. Prerequisites: EECE 261 or consent of instructor. SPRING. [3]

EECE 263. Signal Measurement and Analysis. (Also listed as BME 263) 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. Prerequisite: 214, Probability and Statistics. FALL. [3]

EECE 264. Electromechanical Energy Conversion I. Theory and design of inductors, transformers, linear actuators, and simple motors. Prerequisite: 213, Math 196. Corequisite: 233. FALL. [4]

EECE 265. Electromechanical Energy Conversion II. Theory and design of rotating machines. Dynamics and control of rotating machines. Prerequisite: 264, 257. SPRING. [4]

EECE 266. Power Electronics. Introduction to solid-state power electronics. Rectifiers, semiconductor switches, AC voltage controllers, controlled rectifiers, choppers, and inverters are studied. Three lectures and one laboratory. Prerequisite: 213, 235; Math 196. SPRING. [4]

EECE 267. Power System Analysis I. Analysis of large transmission and distribution networks. Analysis of power lines, load flow, short circuit studies, economic operation, and stability are introduced. Prerequisite: 213. FALL. [3]

EECE 268. Power System Analysis II. Continued study of load flow, short circuit analysis, economic operation, and stability of power systems. Introduction to protection fundamentals. Prerequisite: 267. SPRING. [3]

EECE 269. Electrical Energy Production. The production of electrical energy by conversion methods, little used today, which will become important as traditional sources of energy are depleted. Emphasis is on conservation, storage, efficiency, and direct energy conversion. Prerequisite: 213, Math 196. No credit for both 269 and ME 265. SPRING. [3]

EECE 271. Introduction to Robotics. (Also listed as ME 271) 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 196 (or equivalent). ME 141 (or equivalent) recommended. FALL. [3]

EECE 272. Advanced Software Architectures. Tools and techniques for designing complex software systems. Programming language idioms, design patterns, and high-level architecture of systems. Overview of reactive systems, client-server architectures, distributed object systems, object database systems, and design methods. Lectures and seminars. A team-oriented approach is required. Prerequisite: CS 201 and knowledge of the C++ language. SPRING. [3]

EECE 273. Parallel Systems. An overview of the state of the field of Parallel Systems. Examination of the problems and limitations associated with developing parallel systems. Survey of current design trends and approaches for overcoming these problems. Critical evaluation of current and future parallel systems through review of current literature: distinguishing fact from fiction. Hands-on design experience through project work using available state-of-the-art parallel processors. Prerequisite: CS 101 or knowledge of the C language. SPRING. [3]

EECE 274. Informatics Engineering. The study, invention, and implementation of structures and algorithms to improve communication, understanding, and management of information. Course topics include: learning to access computer-based information resources, and managing and building information products. An intensive team-oriented project experience is included. Prerequisite: ES 130, CS 201, EECE 112, or consent of instructor. SPRING. [3]

EECE 276. Microprocessors and Microcontrollers II. Advanced course on design and application of microprocessor-based systems. Bus architecture and timing, direct memory access, intelligent peripheral devices, device drivers, language linkage. A structured project is required. Intended for seniors. Three lectures and one laboratory. Prerequisite: 218. FALL. [4]

EECE 277. FPGA Design. Design and applications of field-programmable gate arrays, CAD tools for design, placement, and routing. Practical experience is gained by implementing various designs on prototype FPGA board. A project is required. Prerequisite: EECE 116, EECE 218. SPRING. [3]

EECE 279. Real-Time System Design. Introduction to the design and implementation of real-time systems, including hardware architectures for real-time systems, basic concepts of real-time programming, real-time C programming, and features of real-time supervisors. A project is required. Three lectures and a laboratory. Prerequisite: 218. FALL. [4]

EECE 280. Electronic Circuits II. Integrated circuit analysis and design. High frequency operation of semiconductor devices. Frequency-response and feedback analysis of BJT and MOS analog amplifier circuits, multi-stage frequency-compensated amplifier design. Transient analysis of BJT and MOS digital circuit families. Digital-to-analog and analog-to-digital conversion circuits. Prerequisite: 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: 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: 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: 116, 235 or consent of instructor. FALL. [3]

EECE 286. Advanced MOS Circuit Design. MOS circuit design for modern integrated microelectronics. Emphasis on recent advances in the area of CMOS analog circuits and combined digital-analog circuits. Advanced MOS circuit modeling and computer simulation, MOS circuits for both continuous-time and discrete-time signal processing, dynamic circuits, nonlinear modulators, data conversion circuits, and analog VLSI. Background as well as state-of-the-art material covered via a combination of textbooks and recent journal articles. Prerequisite: 235, 280, 285. 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 291–292. Special Topics. [Variable credit: 1–3 each semester] (Offered on demand)

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 MT234, but preparatory to the EECE senior design project course, EECE 296. Not for graduate credit. Credit given for only one of MT 234 and 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. Prerequisites: 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. Fundamentals of the electrical and magnetic properties of solids. Dielectric and magnetic properties are discussed. Prerequisite: 301 or equivalent. SPRING. [3]

EECE 303. Electromagnetic Theory. A review of electromagnetic theory using advanced mathematical techniques, electromagnetic wave propagation. [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 Magnetism. Selected topics in magnetism, magnetic properties of crystalline and non-crystalline materials; ferrite materials for electronics and microwave applications, resonance phenomena. Prerequisite: 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 312. Digital Control Systems. Signal conversion and processing, z-transform technique, signal flow-graph method, state space approach, stability of digital control systems, time and frequency domain analysis, and digital control design. Prerequisite: 311. SPRING. [3]

EECE 331. Robot Manipulators. (Also listed as ME 331) 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 of manipulators. Prerequisite: 271 (0r equivalent). SPRING. [3]

EECE 341. Electronic Circuits I. 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. Electronic Circuits II. 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 350. Artificial Neural Networks. (Also listed as BME 350 and CS 350) 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]

EECE 353. Real-Time Application Programming. Introduction to the design of real-time systems, including multiprocessor hardware architectures; basic concepts of real-time, concurrent programming; programming in Modula-2; design methodologies for real-time measurement and control systems; and real-time supervisors and operating systems. FALL. [3]

EECE 354. Advanced Real Time Systems. A continuation of 353. Includes hybrid architectures for combining symbolic and nonsymbolic programming for real-time systems; par-

allel architectures and programming methods for symbolic programming of dataflow systems, connection machines, actor systems; literature reviews and projects. SPRING. [3]

EECE 355. Intelligent Learning Environments. (Also listed as CS 364) 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]

EECE 356. Intelligent Robotics. Analysis and design of intelligent robotics using recent research reports. Emphasis on how artificial intelligence is advancing robotics. Obstacle avoidance, hierarchical control, and planning. SPRING. [3]

EECE 357. Advanced Image Processing. (Also listed as CS 357) 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 a posteriori, and other criteria. Multidimensional probability theory, signal and noise problems, and Kalman filter structure are studied. SPRING. [3]

EECE 363. Digital Signal Processing. Theory of digital signal processing with emphasis on the frequency domain description of digital filtering: discrete Fourier transforms, flow-graph and matrix representation of digital filters, digital filter design, and fast Fourier transform, discrete Hilbert transforms, and effects of finite register length. FALL. [3]

EECE 364. Statistical Signal Processing. The fundamentals of detection and estimation theory for signals are developed. Modern spectral analysis techniques and autoregressive-moving average processes are studied. Prerequisite: 263 or equivalent exposure. SPRING. [3]

EECE 365. Biomedical Pattern Recognition. (Also listed as BME 365) General problems of pattern recognition with applications to biomedical signals and images. Topics such as feature extraction, cluster analysis, discriminant analysis, statistical decision functions, and machine learning will be introduced. Prerequisite: 263 or equivalent. SPRING. [3]

EECE 369. Master's Thesis Research.

EECE 389. Master of Engineering Project.

EECE 391–392. Seminar. [1–1]

EECE 393–394. Advanced Seminar for Ph.D. Candidates. [1–1]

EECE 395–396. Special Topics. Based on research and current developments in electrical engineering of special interest to staff and students. [3–3]

EECE 397–398. 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 Science

1 THE Engineering Science Program is flexible and interdisciplinary—offering students the opportunity to select a unique program of study to meet special interests or objectives that are not easily reached through traditional engineering programs. The program is under the supervision of the Engineering Science Committee consisting of faculty members John A. Bers, Jimmy L. Davidson, Donald L. Kinser, Taylor G. Wang, Weng Poo Kang, Robert E. Stammer, Jr., (Chair), Robert A. Weller, and James E. Witting. Students who choose Engineering Science recognize the growing importance of a broad-based interdisciplinary engineering background. Many students choose a program of study in applied physics, management of technology, communication of science, engineering and technology, 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 applied physics, management of technology, communication of science, engineering and technology 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, hospital administration, and other areas requiring nontraditional combinations of engineering courses. Because of the flexible nature of the Engineering Science programs of study, ABET accreditation has not been sought for these programs of study.

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 coordinator of the Program in Management of Technology.

Management of Technology. Management of Technology is an interdisciplinary program of study designed to give students the tools to manage competently technology development and innovation, to enhance manu-

facturing quality and productivity in a competitive international environment, and to implement these objectives successfully in an organization. Management of technology 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, total quality management, communications, and manufacturing.

Applied Physics. Applied physics is an important subdiscipline of applied science and is expected to increase in significance in the years to come. It is unique in its generality, overlapping almost all of the traditional engineering disciplines. Individualized courses of study in applied physics can be structured through the Engineering Science Program in cooperation with the Department of Physics and Astronomy.

Communication of Science and Technology. Many careers that are attractive to graduates of the Engineering Science program require the communication of the often complex concepts of engineering and science to people who are not technically trained. The "Communication of Science and Technology" interdisciplinary program prepares engineering students for these communication intensive 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 elect to pursue a minor consisting of at least five courses of at least three credit hours each within a recognized area of knowledge. Such a minor offers students more than a casual introduction to an area, but less than a major or concentration. A minor for which all designated courses are completed with a least 2.0 average will be entered on the transcript at the time of graduation. Approved minors are offered in Management of Technology, Materials Science and Engineering, Computer Science, Environmental Engineering, and most disciplines within the College of Arts and Science. Students must declare their intention to pursue minors by completing forms available in the Student Services Office of the School of Engineering.

Curriculum Requirements

Students must complete a minimum of 120 hours. Each student must identify a minimum of 27 hours, not counting certain introductory-level courses, that directly contribute 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 Bio Sci 110 a–b; Chemistry 102b/104b; Physics 116a–b, 117a–b, or 121a–b; or MSE 150 with two courses in a single discipline.

2. Mathematics (14 hours). Required courses (8 hours): 155a–b (qualified students may substitute an honors mathematics sequence). Electives (6 hours): to be selected, with consent of adviser, from the list of math courses numbered 175 and above, except 180.

3. Engineering courses (38 hours). Required courses (12 hours) include CS 101 or 103; ES 140, 210W and CE 180.

Engineering science electives (at least 12 hours) to be selected from:

BME 103, 210, 251, 252.

CHE 161, 162, 180, 216, 223, 225, 230, 231, 232, 242, 280, 282, 283, 284.

CE 160a, 160b, 182, 203, 212, 216, 225, 226, 227, 232, 235, 240, 242, 247, 255, 256, 257, 259, 262, 286, 287, 288, 290, 293, 294, 295.

CS 201, 212, 250.

EECE 112, 116, 213, 214, 218, 233, 235, 257.

ES 260a, 260b, 290

MT 216, 221, 233, 234, 242, 244, 251, 253, 265, 275, 280.

MSE 150, 232, 246, 250, 251, 252, 256, 275.

ME 160, 171, 190, 200, 201, 205, 213, 220a, 220b, 224, 226, 234, 242, 248, 255, 257, 260, 262.

Credit allowed for only one course of CE 195 or ME 160

Engineering electives: Any Engineering School courses may be used to complete the 38-hour requirement, provided at least 9 hours are in one related area.

4. Liberal Arts Core (18 hours). To be selected in accordance with the Distribution Requirements under *Degree Programs in Engineering*. Three hours must be in a technology-society elective.

5. Open electives (7 hours).

6. Program electives (27 hours). To be selected in such a way as to provide a meaningful sequence of courses. Course work must be planned in advance and approved by the faculty adviser.

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 120. Introduction to Engineering Problem Solving. An introduction to the fundamentals of engineering, primarily for non-majors. Analytical problem solving, modeling and simulation, engineering design, and engineering ethics in a multi-disciplinary environment. Credit given for only one of ES 120, ES 140 and CS 150. Course open to non-engineering students or by consent of instructor. SPRING. [3]

ES 140. Introduction to Engineering. A module-based introduction to engineering analysis and design. Module 1 covers problem solving skills in a general engineering context. Modules 2 & 3 exemplify specific fields of engineering and are selected by the student according to individual interests. Emphasis is on solving contemporary engineering problems in specific disciplines. Open to engineering freshmen or by consent of instructor. Credit given for only one of ES 120, ES 140 and CS 150. FALL. [3]

ES 151. Introduction to Applied Physics. (Also listed as Phys. 151) Principles of atomic, molecular, and condensed matter physics. Applications in lasers, electronics and photonics, superconductivity, semiconductor processing, and nonlinear wave mechanics. Prerequisite: One year of physics and one year of calculus. FALL. [3]

ES 153. Impact of Our Nation's Space Program on Society. This course offers first-year students an opportunity to understand the impact of our nation's space program on society. It will address the substance of the space program as well as its impact on science, technology, medicine, and economics. Students will be exposed to how public policy regarding the space program has been determined, and how technical decisions are made. Technology-Society elective. Prerequisite: None. No credit for junior and senior engineering students. FALL. [3]

ES 155. Engineering: Stone Age to 1918. The evolution of engineering thought and the design process using examples of engineering projects from antiquity through World War I. Engineering solutions to human requirements for food, water, shelter, transportation, communication, and defense are examined. Technology-Society elective. Prerequisite: None. No credit for junior and senior engineering students. FALL. [3]

ES 157. Technology and the Environment. An introduction to the types of environmental problems caused by our technological society and the constraints that environmental protection regulations place on technology. History and philosophy of the development of an environmental ethic. Case studies of industry-specific impacts. Economic development and environmental protection. Laws, regulations, and conflict resolution process. Technology-Society elective. Prerequisite: None. No credit for junior and senior engineering students. FALL. [3]

ES 159. Engineering Failure: The Dark Side of Technology. The course provides first-year students with a grasp of the serious consequences of engineering failures and how they impact society. Perspectives are drawn from case histories. The societal cost of failure, underlying human values, the issue of liability, causes of failure, and failure prevention strategy are examined. Technology-Society elective. Prerequisite: None. No credit for junior and senior engineering students. FALL. [3]

ES 190. The Evolution of Modern Technology. The context and impact of the major technological developments since the eighteenth century. SPRING (even numbered years). [3] Eakin and Kinser.

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 248a–248b. Undergraduate Research. Offers students who have an independent study program the opportunity to pursue it under the direction of a faculty member with expertise in the area of study. FALL, SPRING. Variable credit 1–3 each semester, not to exceed a total of 6.

ES 260a–260b. Concepts and Methods of Applied Science. Conventional and computer-assisted methods of scientific problem solving, emphasizing techniques important in advanced mechanics (including relativistic systems), electromagnetism and optics, quantum and statistical mechanics and data analysis. Extensive use is made of the computer software system *Mathematica*®. Prerequisite: general physics and mathematics through differential equations. Prior exposure to symbolic computation is desirable. [3–3]

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]

Management of Technology

DIRECTOR William R. Mahaffey

DIRECTOR OF GRADUATE STUDIES David M. Dilts

DIRECTOR OF UNDERGRADUATE STUDIES John A. Bers

PROFESSORS EMERITI Robert W. House, Barry D. Lichter, Robert T. Nash

PROFESSORS Mark David Abkowitz, Jimmy L. Davidson, David M. Dilts, Kazuhiko Kawamura, William R. Mahaffey, Frank L. Parker

ADJUNCT PROFESSOR David A. Berezov

ASSOCIATE PROFESSOR Gautam Biswas

ASSOCIATE PROFESSOR OF THE PRACTICE John A. Bers

ADJUNCT ASSOCIATE PROFESSOR Ernest G. Freudenthal

ADJUNCT ASSISTANT PROFESSOR Saeed Zadeh

SENIOR LECTURER Benjamin T. Jordan, Jr.

LECTURER Christopher D. McKinney

1 MANAGEMENT of Technology is an interdisciplinary program of study designed to give students the understanding 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. Management of technology links engineering, science, and the management disciplines.

The program in Management of Technology helps to prepare students to work more effectively in developing, implementing, and modifying technologies and systems. Technological change in fields such as computer-aided design, manufacturing, and information systems demands engineers with knowledge of both technology and management. Undergraduates interested in management of technology have two options. They may earn the B.E. degree in another engineering discipline with a minor in management of technology or, they may earn the B.S. degree in engineering science with management of technology as their area of concentration. Courses in management of technology may be approved for minor credit in several programs. Detailed information may be obtained from our Web site: <http://mot.vuse.vanderbilt.edu>. Further questions should be directed to the program director or the director of undergraduate studies.

Management of Technology Minor

The management of technology minor is designed to provide a student majoring in an undergraduate engineering program with a working knowledge of the fundamentals of business and engineering management. Management of technology courses include such topics as management of the high technology enterprise, engineering economics, systems engineering, business psychology, finance, accounting, project planning and control, marketing, manufacturing, and entrepreneurship.

The minor program in management of technology 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:

- MT 221 Introduction to Management of Technology
- MT 233 Systems Engineering
- MT 234 Program and Project Management
- MT 244 Applied Behavioral Science

The student must select one of the following courses:

- MT 216 Engineering Economy *or* MT 251 Accounting and Finance for Engineers
- MT 242 Technology Marketing
- MT 253 Technology-Based Entrepreneurship
- MT 265 Environmental Risk Management
- MT 275 Technology Assessment and Forecasting
- MT 280 Production and Operations Management

Area of Concentration in Management of Technology

Students who are pursuing the B.S. degree in engineering science may select courses in management of technology to satisfy requirements for either engineering electives (up to 26 hours) or program electives (27 hours). Courses in management of technology are often selected in combination with courses in economics to satisfy the program electives.

MT 150. Dynamics of Change: Impacts of Technology. An introductory course concerned with the interrelations among changes in society and advances in technologies in health care, information processing, control systems, etc. Elementary techniques for analyzing problems and for devising strategies for treating them are developed. Cases are presented to illustrate and confirm the techniques. No credit for junior and senior engineering students. Technology-society elective. FALL. [3]

MT 216. Engineering Economy. (Also listed as CE 216 and ChE 216) Economic evaluation and comparison of alternatives: interest, periodic payments, depreciation, criteria, and an-

alytical procedures in investment decision-making, plant feasibility, and cost estimating. FALL. [3]

MT 221. Introduction to Management of Technology. A study of the problems encountered by managers in the planning, organizing, and allocating of resources and in directing, and controlling technical activities. Required for MT minor. Normally taken in the sophomore year. FALL, SPRING, SUMMER. [3]

MT 233. Systems Engineering. An introduction to the 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: MT 221, Math 196 or Math 198 (may be taken concurrently), preliminary understanding of probability and statistics and engineering systems. Required for MT minor. Normally taken in the junior year. FALL, SPRING, SUMMER. [3]

MT 234. Program and Project Management. 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. Credit given for only one of MT 234 and EECE 295. Required for MT minor. Junior standing or above. Prerequisite: MT 221. FALL, SPRING, SUMMER. [3]

MT 242. Technology Marketing. Marketing industrial and technologically-based products and services. Marketing activities from the inception of a product to end use are covered. Business marketing strategy, segmentation, distribution, and personal selling are explored through lectures, readings, cases, and individual student projects. Prerequisite: MT 221. SPRING. [3]

MT 244. Applied Behavioral Science. The “people part of management.” Focus is on employees, customers, owners, and managers, with emphasis on skills and experience needed by young engineers to cope with management responsibilities in technical enterprises. Required for MT minor. Technology-society elective. FALL, SPRING, SUMMER. [3]

MT 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. May be taken as an alternative to MT 216. Only one of these courses may be taken for the minor. Junior standing or above. FALL, SPRING, SUMMER. [3]

MT 253. Technology-Based Entrepreneurship. Approaches to the identification and evaluation of opportunities. Risks faced by entrepreneurs. Market assessment, capital requirements, and acquisition of venture capital. Legal structures and their tax implications for starting technology-based businesses. Prerequisite: MT 221 or 310. FALL. [3]

MT 265. Environmental Risk Management. (Also listed as ENVE 275) Development of environmental safety programs for technological operations. Focuses on defining an environmental risk management process and program implementation, performing risk assessments, determining and selecting appropriate risk reduction strategies, and influencing risk management decisions internally and externally. Extensive use of case studies drawn from the chemical and energy-producing industries. Technology-society elective. SPRING. [3]

MT 275. Technology Assessment and Forecasting. Methods of assessing technological changes in the social, political, ecological, economic, legal, and institutional environments. Technology forecasting is treated in detail: intuitive thinking, the exploratory techniques of

trend extrapolation, the normative techniques of relevance and perspective trees, scenario writing, etc. Government and industrial reports are used as case studies and a term project is required. Prerequisite: junior standing or above. Technology-society elective. FALL. [3]

MT 280. Production and Operations Management. An overview of the state-of-the-art of manufacturing technologies and processes. Also provides an overview of robotics, automation, information technologies, and flexible manufacturing systems. Will investigate the various organizational impacts related to the changing manufacturing work environment. FALL. [3]

MT 295a–295b–295c–295d. Engineering Field Practice. An opportunity to participate in-engineering field practice, under faculty supervision, outside the University and receive academic credit. Balanced by participation in on-campus seminars. One or more written reports required each term. [Variable credit: 1–4 each semester, with a maximum of 6 hours counting toward the minimum requirements of the baccalaureate or M.Eng. degree.]

MT 310. Theory and Practice of Managing Technology. Introduction to concepts of purchasing, manufacturing, marketing, and product development in the engineering intensive firm. Product evolution, continuous improvement in manufacturing processes, quality management, relations with suppliers, and relations with customers are covered. FALL. [3]

MT 311. Theory and Practice of Managing Technological Change. Significant changes in products, manufacturing processes, inputs and markets made by engineering-intensive firms are studied. Interactions between the manufacturing, engineering, and marketing functions, as well as interactions with users are brought out through case studies. SPRING. [3]

MT 312. Probabilistic Methods in Engineering Design. (Also listed as CE 310) 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 or consent of instructor. FALL. [3]

MT 321. Technical Project Management. Organizational and human factors involved in the management of technical projects. Systems life-cycle approach used in characterizing project tasks and work flow. Influence of organization's structure, behavior, and processes. Skills needed to develop project team and direct and control project work. Project work definition, scheduling, budgeting, control, and performance evaluation methods. SPRING. [3]

MT 322. Quality Management. Fundamentals of quality management and continuous improvement in the technology-based company. Influence of organizational culture on the use of specific methods, and approaches toward achieving quality. Customer value concepts and measurement; management of quality to enhance the customer's value. Prerequisite: 310, or consent of instructor. SUMMER. [3]

MT 330. Marketing in the Technology Enterprise. Role of marketing in the technology-based company to maximize return on technologies in the marketplace. Translating core technologies into customer technologies in the marketplace. Translating core technologies into customer value, managing the risks of commercialization, developing market plans, and implementing them. Prerequisite: 310, or consent of instructor. FALL. [3]

MT 359. Emerging Information Systems Applications. (Also listed as CE 359) 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]

MT 369. Master's Thesis Research. [0]

MT 389. Master of Engineering Project. [0]

MT 391–392. Special Topics. Special topics of interest to staff and students based on research or current developments in management of technology. [Variable credit: 1–3 each semester]

MT 397–398. Independent Study. Readings and/or projects in managing technology under the supervision of the staff. Consent of instructor required. [Variable credit: 1–3 each semester]

Materials Science and Engineering

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RESEARCH ASSOCIATE PROFESSORS A.V. Anilkumar, William H. Hofmeister

ADJUNCT ASSISTANT PROFESSOR Robert H. Magruder III

1 TECHNOLOGICAL advances and, indeed, our very lives are dependent and limited by the materials that are available to us. The impact of materials on all of history is obvious, for example, when it is noted that technological progress in a given era is demarcated by the materials available in the era. The Stone Age was followed by the Bronze Age and the Iron Age. The present period can be identified as the Materials Age.

High performance materials are in demand throughout the engineering world. Metals, ceramics, and plastics, and composites of these are required in various applications to continue the forward movement of technology. Further progress demands engineers who have an understanding of materials science and engineering. The U.S. National Science Policy has identified materials science and engineering as a critical area and has specified advancements in the processing and performance of materials as a national initiative. To accomplish these tasks, there is a need for specialists in materials science and engineering as well as those who have an interdisciplinary outlook, combining other engineering disciplines with materials science and engineering.

The Materials Science and Engineering program at Vanderbilt University brings together developments in metals and alloys, ceramics, glasses, electronic materials, polymers, and composites with the fundamental elements of the relationship between properties and structure, the thermodynamics of materials, the physics and chemistry of solids, the physics and chemistry of liquids, surface science and materials characterization. In keeping with the diverse needs in the engineering world, two degree paths involving Materials Science and Engineering are available.

Students may pursue the B.S. degree in Engineering Science with materials science and engineering as their area of concentration or they may earn the B.E. degree in another engineering discipline with a minor in materials science and engineering. The Master of Engineering, an advanced professional degree for engineers, is also offered.

Materials Science and Engineering Concentration

The B.S. degree in Engineering Science with a concentration in Materials Science and Engineering requires satisfaction of the curriculum requirements of Engineering Science, within which the student must take MSE 150 and MSE 250 plus 28 hours selected from the following list of courses.

MSE 209b	Materials Science and Engineering Seminar
MSE 209c	Materials Science and Engineering Undergraduate Research
MSE 210ab	Special Topics
MSE 232	Strength and Structure of Engineering Materials
MSE 246	Thermodynamics and Reaction Kinetics
MSE 251	Mechanical Behavior of Engineering Materials
MSE 252	Ceramics
MSE 256	Surfaces and Thin Films
MSE 275	Diffraction Methods in Materials Science
CHE 284	Semiconductor Materials Processing
CHE 290	Molecular Engineering (Special Topics)
Chem 235	Surface and Polymer Chemistry
CE 295	Mechanics of Composite Materials
EECE 283	Principles and Models of Semiconductor Devices
EECE 284	Integrated Circuit Fabrication and Technology
ME 205	Principles of Materials Processing
Phys 223	Thermal and Statistical Physics
Phys 225ab	Introduction to Quantum Physics and Applications
Phys 251ab	Introductory Quantum Mechanics
Phys 254	Physics of Condensed Matter

Materials Science and Engineering Minor

The minor in Materials Science and Engineering is designed to provide the student with an understanding of materials. The goal is to comple-

ment 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.

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	Materials Science and Engineering Undergraduate Research
MSE 210ab	Special Topics
MSE 246	Thermodynamics and Reaction Kinetics
MSE 251	Mechanical Behavior of Engineering Materials
MSE 252	Ceramics
MSE 256	Surfaces and Thin Films
MSE 275	Diffraction Methods in Materials Science
CHE 284	Semiconductor Materials Processing
CHE 290	Molecular Engineering (Special Topics)
CE 295	Mechanics of Composite Materials
EECE 283	Principles and Models of Semiconductor Devices
EECE 284	Integrated Circuit Fabrication and Technology
ME 205	Principles of Materials Processing

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. Corequisite: Math 155b and Chem 102a or consent of instructor. Three lectures and one laboratory. SPRING. [4]

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 210ab. 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 prin-

cipal stresses, bending and deflection curves for simple beams, loaded columns, and short struts. Corequisite: CE 182. FALL. [1]

MSE 246. Thermodynamics and Reaction Kinetics. Fundamental principles of physical chemistry, concerned with thermodynamics and reaction kinetics, dealing mainly with metals and alloys and their compounds. Applications to extraction of metals, high temperature oxidation, electrodeposition, and corrosion are considered. Prerequisite: MSE 150 and an introductory course in thermodynamics. [3]

MSE 250. Materials Science II. Combines a physical chemistry approach with development of concepts of microstructures applied to materials, principally ceramics, glasses, metals, polymers, and composites. Includes a brief survey of relevant areas of thermodynamics and kinetics; phase equilibria; characterization of phases; diffusion, solidification, and resulting structure and properties; solid-state transformations; synthesis and modern processing techniques. Prerequisite: MSE 150. SPRING. [3]

MSE 251. Mechanical Behavior of Engineering Materials. Deformation modes of materials with a wide range of structural perfection from both the continuum-mechanics and atomic-level approach. The dislocation concept of plastic deformation is introduced and used to explain the relationships between microstructure and mechanical properties. The phenomena of strain hardening, creep, fatigue, and fracture. Prerequisite: MSE 150. [3]

MSE 252. Ceramics. The relationship between atomic structure and the processing and applications of ceramic materials. Discussion of classical ceramic bodies, glasses, refractories, cements, and electrical ceramics. SPRING. [3]

MSE 256. Surfaces and Thin Films. Introduction to modern surface and thin film modification and analysis. Topics include sputtering, ion implantation, backscattering spectrometry, secondary ion mass spectrometry, electron spectroscopies, surface structure and nuclear reaction analysis. Applications in semiconductor device fabrication are discussed. Prerequisite: MSE 150, or consent of instructor. SPRING. [3]

MSE 275. Diffraction Methods in Materials Science. Principles and application of x-ray analysis and transmission and scanning electron microscopy as applied to the study of materials. Stereographic projections, x-ray and electron scattering, crystal structure determination, fluorescent analysis, image contrast theory, and specimen preparation. Two lectures and one laboratory. Prerequisite: MSE 150. [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 340. Transitions in Condensed Systems. Fundamentals of condensation and phase transformations in condensed systems and the genesis of microstructure. Specific aspects of thermodynamics that are the foundation for understanding phase transformations. Reaction rate theory and a treatment of the relevant areas of diffusion. Nucleation and growth theory and its applications to compositional and structural transitions. Review of diffusionless transformations in the solid state. 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 344. Fracture. Theoretical and engineering aspects of the fracture process. Includes continuum, fracture concept, notch theory, statistical analysis of fracture, linear elastic fracture mechanics, and the metallurgical aspects of fracture. Emphasis on predicting the onset of fracture under conditions of brittle behavior, fatigue, stress corrosion, quasi-brittle, and ductile failure processes. Design concepts using linear elastic fracture mechanics will be developed. Prerequisite: consent of instructor. [3] (Not currently offered)

MSE 345. Structure of Glasses. The application of atomic structure to a study of physical properties of amorphous systems. Glass melting, thermal processing, viscosity, optical properties, electric properties, and other topics. Emphasis on structure-property relationships. Glass systems discussed include silicate, borate, and phosphate, as well as nontraditional glass-forming systems. Prerequisite: consent of instructor. [3]

MSE 349. Solid State Diffusion. Fick's laws, Kirkendall effect, mechanisms of diffusion, movement of defects. Particular emphasis will be placed on the oxidation of metals and the associated time laws. Prerequisite: MSE 340. [3] (Not currently offered)

MSE 350. Mechanical Behavior of Materials. The more advanced analyses of the major forms of mechanical behavior of metals, ceramics, and polymers in the form of crystals, glasses, multi-phase mixtures and composites. The elastic behavior of anisotropic crystals and composites and the viscoelastic behavior of polymers. Examination of plastic behavior including important dislocation mechanisms, analyses of cyclic plasticity, creep, and the strength of polymers and composites. The mechanisms of ductile fracture, creep fracture, and the fatigue fracture. The fundamentals of fracture mechanics are introduced and used to treat the origins of cleavage fracture, fracture toughness, and the ductile-to-brittle transition. Throughout, the underlying mechanics and the relations between microstructure and properties are emphasized. [3] Staff.

MSE 369. Master's Thesis Research. FALL, SPRING. [0] Staff.

MSE 391–392. Special Topics. Based on faculty research projects and highly specialized areas of concentration. FALL, SPRING. [Variable credit: 1-3 each semester]

MSE 397–398. 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. [0-0] Staff.

MSE 399. Ph.D. Dissertation Research. FALL, SPRING. [0-12]

Mechanical Engineering

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1 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. degrees in mechanical engineering.

The curriculum in mechanical engineering leading to a Bachelor of Engineering degree 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. Subsonic and supersonic 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. degree in mechanical engineering requires a minimum of 126 hours, distributed as follows.

1. Mathematics (17 hours). Required courses: 155a–155b, 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, MSE 150 (or Chemistry 102b), Physics 116a–b.

3. Engineering Science (25 hours). Required courses: ES 140; CE 180, 182; CS 101; EECE 112; ME 190, 220a, 224, MSE 232.

4. Liberal Arts Core (15 hours). To be selected from the approved lists (see Distribution Requirements in the *Degree Programs in Engineering* chapter). Advanced-level courses must be included in at least one area. At least one “W”-designated course must be included. Eligible for pass-fail credit. See faculty adviser for departmental restrictions.

5. Open electives (6 hours). Eligible for pass-fail credit. See faculty adviser for departmental restrictions.

6. Technology-society elective (3 hours). (See Distribution Requirements.) Students may elect to take an additional Liberal Arts Core elective instead of the technology-society elective.

7. ME core (29 hours). ME 160, 171, 200, 201, 213, 220b, 234, 242, 243, 248, and 297. Students who transfer into ME after the sophomore year will take a technical elective in place of ME 160.

8. Technical electives (6 hours). To be selected from any technical or scientific field; at least 3 hours must be above the sophomore level. See faculty adviser for departmental restrictions.

9. Professional (ME) depth (a minimum of 9 hours). See faculty adviser for recommended courses. Each student must choose at least 9 hours of advanced level ME elective courses approved by the student’s ME faculty adviser.

No one-credit-hour ME course except 209a can be used as an ME 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

Specimen Curriculum for Mechanical Engineering

FRESHMAN YEAR	Semester hours	
	FALL	SPRING
ME 160 [†]		
Mechanical Engineering Modeling	–	3
Other freshman courses (see the engineering freshman-year specimen curriculum)	<u>14</u>	<u>12</u>
	14	15

SOPHOMORE YEAR

Math 175	Second-year Accelerated Calculus	3	–
Math 198	Methods of Ordinary Differential Equations	–	3
Physics 116b	General Physics	4	–
CE 180	Statics	3	–
ME 190	Dynamics	–	3
EECE 112	Electrical Engineering Science	–	3
ME 171	Instrumentation Laboratory	–	2
ME 220a	Thermodynamics I	–	3
CS 101	Programming and Problem Solving	3	–
	Elective	3	3
		16	17

JUNIOR YEAR

ME 200	Kinematics	3	–
ME 201	Design of Machine Elements	–	3
MSE 232	Strength and Structure of Engineering Materials	1	–
ME 234	System Dynamics	4	–
ME 220b	Thermodynamics II	3	–
ME 224	Fluid Mechanics	–	3
CE 182	Mechanics of Materials	3	–
	Elective	3	–
	Math elective*	–	3
		17	15

* Mathematics elective may be chosen from courses numbered 194 or above 198, except 252.

SENIOR YEAR

ME 242	Design Synthesis	2	–
ME 243	Design Projects	–	3
ME 248	Heat Transfer	3	–
ME 213	Energetics Laboratory	2	–
ME 297	Senior Engineering Design Seminar	1	–
	Electives*	9	12
		17	15

* See faculty adviser for recommended advanced level ME elective courses.

† Mechanical engineering majors are encouraged to take ME 160 in the spring of their freshman year in lieu of CS 101.

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. FALL. [1]

ME 151. Laboratory in Machining. Introduction to machining and fabrication of metals and plastics. Fabrication, design and manufacturability of parts or components. FALL, SPRING. [1]

ME 160. Mechanical Engineering Modeling. A study of design, modeling, and graphical presentation for mechanical engineering components, processes, and systems, using computer-aided techniques and methods. Two lectures and one lab. No credit for juniors or seniors. Prerequisite ES 130. SPRING. [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 or ME 141, Physics 116a. Corequisite: Math 198. FALL, SPRING, SUMMER. [3]

ME 200. Kinematics. The kinematics of mechanisms using graphical and numerical methods. Computer applications and techniques. Prerequisite: 190; Corequisite: CS 101. FALL. [3]

ME 201. Design of Machine Elements. Application of the principles of mechanics of materials to the analysis and synthesis of machine elements. Prerequisite: CE 182; recommended: 200. SPRING. [3]

ME 205. Principles of Materials Processing. Basic engineering principles of the various manufacturing processes, theory, and practice. Two lectures and one three-hour laboratory or field trip. Prerequisite: junior standing. FALL. [3]

ME 209a. Mechanical Engineering Project. Each student selects a topic of interest, with approval of the faculty; conducts a literature search; and presents formal written and oral reports on the findings. Prerequisite: junior standing. FALL, SPRING. [1]

ME 209b. Mechanical Engineering Project. Involving individual experimental, analytical, or design projects approved by the faculty. A written final report is required. Prerequisite: junior standing. FALL, SPRING. [2]

ME 209c. Mechanical Engineering Undergraduate Research. Open to selected senior mechanical engineering students wanting to do independent research. A formal written report is required. Prerequisite: senior standing. 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. Prerequisite: junior standing. FALL. [2]

ME 220a. Thermodynamics I. Application of the first and second laws to energy transformation processes and properties of technologically important materials. Prerequisite: Physics 116a; Math 175. FALL, SPRING, SUMMER. [3]

ME 220b. Thermodynamics II. Application of principles of thermodynamics to vapor and gas cycles, mixtures, combustion, and compressible flow. Prerequisite: 220a; corequisite: Math 198. FALL, SUMMER. [3]

ME 224. Fluid Mechanics. (Also listed as CE 203) Physical properties of fluids, fluid statics; equations of conservation of mass, energy, and momentum; dimensional analysis and similarity; principles of real fluid flows: boundary layer effects, flow through pipes, flow in open channels, drag forces on bodies. Prerequisite: 190; Math 198. Graduate credit for students in geology. FALL, SPRING, SUMMER. [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: 220b, 224. SPRING. [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: 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 236 or 336. Prerequisite: 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: 201. 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: 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: 220a, 224. 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: 190, Math 198. SPRING. [3]

ME 260. Energy Conversion I. 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: 220b, 224. FALL. [3]

ME 261. Basic Airplane Aerodynamics. Includes aerodynamic forces, airfoil characteristics from both theory and experiment, aircraft experiment, aircraft performance, longitudinal and lateral stability and control. Prerequisite: 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: 220b; corequisite: 248. 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: 220b. SPRING. [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. No credit for both 265 and EECE 269. Prerequisite: 220a. SPRING. [3]

ME 271. Introduction to Robotics. (Also listed as EECE 271) 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. SPRING. [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: 190 and 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: 234, Systems Dynamics. FALL. [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: 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: 220b. FALL. [3]

ME 325a. Advanced Fluid Dynamics I. A study of the kinetics of inviscid and viscous fluids. Use of the constitutive equations for study of steady or transient, and laminar or turbulent flows. Application to numerous engineering problems. Prerequisite: 224 or equivalent. FALL. [3]

ME 325b. Advanced Fluid Dynamics II. A continuation of 325a: the phenomenological theories of turbulence are applied to boundary layer flow. The fundamentals of turbulence, including correlation functions and spectra are examined, and existing methods of measurement are discussed. Prerequisite: 325a or consent of instructor. SPRING. [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: 224. SPRING. [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. FALL. [3]

ME 328. Propulsion Systems. A study of turbojet, ramjet, rocket motor, and advanced propulsion systems. The influence of component performance upon the overall system is emphasized. Preliminary designs of propulsion systems and criteria of performance are developed. Prerequisite: Consent of instructor. SPRING. [3]

ME 331. Robot Manipulators. (Also listed as Electrical and Computer Engineering 331) 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: 271. SPRING. [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. FALL. [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 236 or 336. Prerequisite: 234. FALL. [3]

ME 343. High-Performance Computing for Engineers. (Also listed as CS 343) Introduction to high-performance computing. Engineering applications. Focus on high-speed cluster computing. Class project applying high-performance computing to various research topics. SPRING. [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: 248, 325a. SPRING. [3]

ME 352. Nonlinear 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: 257, Math 194. SPRING. [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: 234. FALL. [3]

ME 355. Engineering Design and Optimization. Methods for optimal design of mechanical systems are developed and applied. Nonlinear optimization strategies are implemented through progressive exercises on unconstrained and constrained optimization problems with single and multiple design variables. Students explore the implementation of basic algorithms through computer-based tools and available Fortran (or C) subroutines. Feasibility and optimality conditions and design problem formulation are emphasized. Computer literacy and some programming experience are required. Each student is expected to complete a major design project in their area of technical interest. [3] (Offered on demand)

ME 356. Mechanical System Reliability. Design of mechanical systems subject to reliability constraints. Emphasis on response surface modeling, variance reduction concepts, probabilistic design methods and advanced simulation concepts with application development using reliability software. Prerequisite: 355 and either CE 310 or Math 233. [3] (Offered on demand)

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: 259; Math 234, 294. SPRING. [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: 248. SPRING. [3]

ME 365. Micro/Nanoscale 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. FALL. , [3]

ME 366. Combustion. Introduction to combustion processes. Topics include combustion thermodynamics, chemical kinetics, premixed flame theory, diffusion flame theory, ignition and detonation. Prerequisite: 220b, 224. FALL. [3]

ME 369. Master's Thesis Research.

ME 389. Master of Engineering Project.

ME 391–392. Special Topics. A course based on faculty research projects and highly specialized areas of concentration. [Variable credit: 1–3 each semester]

ME 393–394. 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 397–398. Seminar. [0–0]

ME 399. Ph.D. Dissertation Research. [Variable credit]



Peabody College

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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 Peabody College of Vanderbilt University. Since that time, Peabody College has retained its heritage and has achieved new stature as a national leader among graduate schools of education and human development.

Peabody has identified five challenges which drive its vision of the future. These challenges are to enhance learning, to optimize human development, to build new visions of teacher education, to improve undergraduate education, and to render educational institutions more effective. Peabody 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, for organizations both in and out of education, who share a deep concern for the human condition.

Peabody College 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 the public debate about the nature and future of education and human development.

Today, more than 1,700 students are enrolled at Peabody, with more than one-third of them in post-baccalaureate graduate or professional degree programs preparing for careers in areas related to education and human development.

All teacher education programs are approved by the National Council for the Accreditation of Teacher Education (NCATE).

Facilities

John F. Kennedy Center for Research on Human Development

The John F. Kennedy Center for Research on Human Development is one of fourteen national centers for research on mental retardation and developmental disabilities supported in part by the National Institute of Child Health and Human Development. The mission of the Kennedy Center is to improve, through research, training, and outreach, the quality of life of persons with disorders of thinking, learning, perception, communication, mood and emotion caused by disruption of normal development. The center is a University-wide research, training, diagnosis, and treatment institute, embracing faculty and resources available through Peabody College, Vanderbilt University Medical Center, and the College of Arts and Science. The Center's interdisciplinary research programs address three broad areas: communication and learning, developmental neurobiology and brain plasticity, and emotion and mood.

The Kennedy Center has a distinguished record of training behavioral and biomedical scientists who are dedicated to solving problems of development and developmental disabilities. Center investigators are Vanderbilt faculty known nationally and internationally for their innovative research. The Kennedy Center is committed to moving research from the laboratory, to the classroom and clinic, to society.

Students have the opportunity to collaborate in research with mentorship from renowned scientists, especially with faculty in Vanderbilt research training programs associated with the Kennedy Center: mental retardation and developmental disabilities, special education, developmental psychopathology, neurogenomics, neuroscience, and vision science. Observation, practicum, and clinical experiences are available in the Center's clinical programs: the Susan Gray School for Children, an early childhood education/special education program of Peabody College and the Kennedy Center; the Reading Clinic; the Developmental Disabilities Behavior Clinic; and, beginning in fall 2004, the Family Research and Resources Clinic. The Kennedy Center is a participant in the Vanderbilt Brain Institute, a transinstitutional, interdisciplinary program to foster and facilitate neuroscience research, training, science education, and public outreach. Collaborative relationships with the Tennessee Departments of Education, Health, and Mental Health and Developmental Disabilities, and county school systems and community programs provide additional research and clinical opportunities.

Learning Sciences Institute

The Learning Sciences Institute (LSI) is dedicated to building knowledge that will enable every person to become a lifelong learner, one who has the freedom and power to improve his or her own life and the lives of those in their communities.

The LSI is a University-wide research and development center drawing on faculty and students from across the campus. It pursues interdisciplinary scientific study of learning processes and learning opportunities in four areas:

Learning Processes: research and knowledge dissemination regarding learning and human development, exceptional learning patterns, and learning and diversity;

Teaching: create and promote innovative instructional theory and practice for teachers, leaders, professionals, practitioners, adult learners, and students, including models for exceptional and diverse learners;

Contexts for Learning: investigate and improve understanding of institutional and organizational contexts of learning and the effects of learning on those contexts—social, economic, political, cultural—and formulate assessment and evaluation tools to measure these; and,

Designs for Learning: build curricula, create and leverage the use of technology, and design learning approaches to content areas or domains of knowledge.

Center for Education Policy

The Peabody Center for Education Policy at Vanderbilt University was established in fall 1994 to improve education by promoting policy, practices, and professional and public understanding of challenges facing education in the United States. The Peabody Center's interests span the continuum of public and private education, encompassing preschool, post-secondary, adult education, lifelong learning, and national research policy.

The Peabody Center's intellectual and policy agenda includes five domains:

Popular Commitment to Education in the United States. The Peabody Center undertakes sustained, comprehensive efforts to illuminate and understand public beliefs, attitudes, and opinions about education. The Peabody Center is strategically committed to knowledge of relevant public opinion and its policy consequences.

Education Reform and the Policy Process. The Peabody Center offers policy makers, practitioners, parents, and others additional resources with which to resolve issues associated with Goals 2000, national standards, state systemic initiatives, restructuring, technology integration, privatization, and other matters.

Transfer of Knowledge. Recognizing that better bridges between and among education and research disciplines are needed, the Peabody Center is engaged in efforts to integrate important education reform efforts. A key goal is widening dialogue among cognitive scientists, curriculum designers, instructional technology experts, and others responsible for preparing scholars and education practitioners.

Education, Race, and Diversity. The Peabody Center is engaged in a research agenda that will contribute to formulation of policies, priorities, and practices by which the nation might more effectively address problems associated with inclusion, community, social cohesion, intergroup relations, tolerance, and the valuation of diversity.

Public–Private Partnerships in Education. The Peabody Center recognizes the need to chronicle expansion of public–private partnerships, contracting out, and privatization. Investors, regulators, policy makers, and parents, want to know the educational value of individual products and services, as well as the prospects for securities underlying these ventures. The Center addresses these and related issues.

The Peabody Center views its most influential policy constituencies as falling into five primary groups: families and communities, education professionals, policy makers, scholars, and foundations. The Center's services, broadly defined, include communications, analysis, and research.

The Undergraduate Program

PEABODY College offers the Bachelor of Science degree with majors in early childhood education, elementary education, secondary education, special education, cognitive studies, child development, 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 degree 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. The study of computer language.

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/Health 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–4), elementary (grades K–8), and secondary education (grades 7–12) with endorsement in English, math, French, Latin, Spanish, German, biology, chemistry, physics, earth science, history, economics, political science, psychology (grades 9–12), and sociology (grades 9–12).* Offered by the Department of Teaching and Learning.

Special education—modified (LD, BD, EMR for grades K–12), comprehensive (multiple/severe disabilities for grades K–12), visual impairment (grades PreK–12), hearing impairment (grades PreK–12), or early childhood/preschool (grades PreK–1). All five 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 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/computer technology 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 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 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 set of 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.

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 and performance 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 A&S major(s).

Screening deadlines are *October 1* and *February 1*. (Note: If either of these dates falls on a weekend, the deadline is moved to the following Monday.) Deadlines are firm; late applications will not be accepted. Application forms are available in departmental offices and should be returned to those offices no later than the deadline. (Note: Screening applications require additional documents when submitted. See specific requirements on the applications.)

Students will be notified in writing of results of the faculty vote. In instances where there is a negative decision, the student wishing to appeal must do so in writing to the chairperson(s) of the department(s) denying the application. If the initial decision is upheld and the student wishes to

continue the appeal, a written petition should be filed with the Administrative Committee of Peabody College.

Screening I (Formal Admission to an Undergraduate Teacher Education Program)

Each student seeking teacher licensure must be formally admitted to the teacher education program(s) by applying for Screening I review by the faculty of the department(s) in which endorsement(s) is/are sought. Screening I applications must be submitted by the student in the first semester of the junior year and approved by the faculty no later than the first semester of the junior year. With consent of the student's faculty adviser(s), application for Screening I may be made during the second semester of the sophomore year. 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.

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 with a minimum grade of C- in all professional education courses
4. Minimum grade of C- in writing and speech/theatre courses used to meet the Communications requirement in the Liberal Education Core

B. Specific Faculty Evaluative Criteria

The faculty will consider the 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. The semester prior to the one during which a student is to student teach, the student must submit a Screening II application to the appropriate department(s) and request student teaching placements. 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. Approved program of studies on file (see Program of Studies)
3. 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)
4. Successful completion (C- or above) of all courses required and prerequisite to student teaching
5. Minimum cumulative grade point average of 2.5 (4.0 scale)
6. Satisfactory performance (C- or above) in coursework in areas in which teacher licensure is sought
7. Successful completion of Standard First Aid and CPR training (submit certificate copies with Screening II application)

B. Specific Faculty Evaluative Criteria

The faculty will consider the 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 must be accompanied by additional documents, depending on the endorsement(s) being sought. 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 (Monday before VU classes begin on Wednesday for the semester).

Students who have passed Screening II are assigned two specific student teaching placements in the Nashville area. Students in early childhood and elementary education may apply to the Department of Teaching and Learning for one student teaching placement in Cambridge, England.

Program of Studies

Upon admission to teacher education (passing Screening I), each student, in consultation with the education adviser, must prepare an acceptable program of studies that constitutes the student's plan to take all courses and field work required for the degree and teacher licensure. The student should obtain the program of studies form in departmental offices and should meet with the faculty adviser to complete the form and to receive initial approval.

Once the program has been filed and approved in the Office of Administration and Records, changes in the program may be made with approval of the student's faculty adviser and department chair. Students should submit a program of studies for approval during the semester in which they register for their 60th hour.

Program of studies forms are available from the staff in the department for the education or special education major. Students may not apply for Screening II until the program of studies is approved and on file in the Office of Administration and Records.

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, elementary, or special education licensure may apply for fall or spring student teaching. Secondary 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 *Undergraduate Handbook* provided by the Peabody Office of Administration and Records 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 set of 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 develop proposals for submission to the federal government which detail strategies teachers may use to qualify for "highly qualified" status by 2005/2006, 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 submitting their plans for federal review. Vanderbilt teacher education students are apprised of the issues addressed by NCLB; however, how other states interpret NCLB in terms of licensing and/or employability cannot be determined at this time. 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 Series (scores must be sent to the Vanderbilt Office of Teacher Licensure—code R 1871, and the Tennessee State Department of Education—code R 8190).* The Tennessee State Department of Education calculated a composite pass rate of 99 percent for Vanderbilt graduates who completed a teacher education program during AY 2002/2003 and who took one or more PRAXIS examinations within the Tennessee-defined time period.
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 before registering to take the exams.

Accreditation

Vanderbilt is approved by the National Council for Accreditation of Teacher Education (NCATE) and by the Tennessee Department of Education and the following specialty professional associations:

- National Council for Teachers of Mathematics (NCTM)
- National Council for Teachers of English (NCTE)
- National Science Teachers Association (NSTA)
- National Council for the Social Studies (NCSS)
- 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

1

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.

P

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. Former students whose Peabody or Vanderbilt undergraduate course work is more than five years old must complete a minimum of 30 hours of current Vanderbilt course work.

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 at Vanderbilt or at another college.)

Students wishing to earn credit by departmental examination should consult the registrar concerning procedures. To be eligible, students must be carrying a minimum of 12 hours and be in good standing. Exceptions to these requirements may be granted on petition to the Peabody Undergraduate Administrative Committee.

Students will be given the grade Pass in courses for which credit is received by examination. These courses will not be used in determining grade point averages.

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 and courses dropped after the change period. Students in this category must pay a fee for the cost of administering the examination. Full-time students with a tuition load exceeding 18 hours and students taking less 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 II writing and mathematics tests. The following application of these scores will be made to the Peabody Liberal Education Core:

Writing Requirement:

Peabody students with majors in Child Development, Child Studies, Cognitive Studies, and Human and Organizational Development must meet the writing requirement by completing one of the following options:

1. Successful completion of two writing-intensive (“W”) courses (except English 100W) from any Vanderbilt subject area.
2. An SAT II Writing Test score at or above 560 and one “W” course.
3. An SAT II Writing Test score at or above 760.

Peabody students with majors in Early Childhood Education, Elementary Education, Secondary Education, and Special Education may meet the writing requirement by completing one of the following:

1. Successful completion of one writing-intensive (“W”) course (except English 100W) from any Vanderbilt subject area.
2. An SAT II Writing Test score at or above 560.

A writing-intensive course has a “W” after the course number and may also fulfill other Liberal Education Core requirements as indicated in the Liberal Education Core requirements listed for each major.

ENGLISH 100W will not fulfill the writing requirement or count in the communications category of the Liberal Education Core.

Students with an SAT II writing test score under 560 must take ENGL 100W as an elective in their first year, depending on their major.

Students with an SAT II writing test score at or above 560 will get elective credit for ENGLISH 100W (if taken).

Mathematics:

Students 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 must take a statistics course in the mathematics category.

P

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 no more than one 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 Undergraduate Academic Affairs, 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 Undergraduate Academic Affairs 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 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.

Credit for Officer Education Courses

Peabody College awards elective credit for Naval Science 231 and 241 and for Military Science 151–152 and 113.

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 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*.

Pass/Fail and Pass/No Credit Provisions

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 OASIS within the change period of the registration period during the first week of classes. After this, 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.

Departments may designate that certain courses or competencies be reported on a Pass/No Credit basis. Hours passed in this status will count as hours earned but will not be included in the calculation of the student's grade point average. Grades of *No Credit* earn no hours of credit toward graduation and are not calculated in the grade point average.

Missed Final Examination

The grade *M* (missed) will be given to a student who missed the final examination who is not known to have defaulted, but the grade *F* will be given to a student who could not have passed the course even with the final examination. The grade *M* must be authorized by the Dean, and it is the student's responsibility to obtain this authorization from the Peabody Office of Administration and Records before the end of the examination period. The appropriate form requesting the grade *M* is available in the Peabody Registrar's Office. The grade for a student who misses a final examination and whose work is incomplete in other respects as well will be recorded as *MI*. The temporary grade *M* or *MI* is calculated as an *F* in the grade point average until it is replaced with the actual grade earned.

A student who secures authorization for an absence at the proper time is obliged to take a make-up examination during the first full week of the next semester, provided the student is in residence. It is the student's responsibility to contact the office of the Dean before the second day of classes to schedule the make-up.

Incomplete

The grade *I* (incomplete) is used in cases in which the student is not able to complete all course work in the normal time. The awarding of the grade *I* is the prerogative of the instructor and is used when illness or other extenuating circumstances prevent the completion of the work. The student must request an extension for incomplete work, and this request must be approved by the Dean before the date final grades are due. The appropriate form with which to secure approval for the grade *I* is available in the Peabody Registrar's Office. The instructor will specify a date by which remaining work must be completed and if the work is not completed by this date, the *I* grade will be changed to the grade the student would have received without the missing work. The temporary grade *I* is calculated as an *F* in the grade point average until it is replaced with the permanent grade.

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 does not have a “dead week” policy prohibiting 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.

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. 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. 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. 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
203 Peabody Administration Building
Peabody #329
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.

Auditing

Peabody Courses. Any regularly enrolled Peabody student who wishes to audit a course at Peabody must obtain the oral approval of the instructor to attend the class but does not register for the course.

Student Leave of Absence

A student desiring a leave of absence should obtain the appropriate forms from the Office of Undergraduate Academic 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 materials will be mailed to his or her permanent 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

1

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. These students have the exclusive opportunity to pursue advanced scholarly work in an honors seminar. Peabody Scholars also participate with faculty in research projects and study. The yearly cohort of fifteen Peabody Scholars attend University lectures and hold discussions led by faculty with expertise in the area.

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 3.000. Further information on the Peabody Scholars Program may be obtained from Professor Ann Neely.

P

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 and a half 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 105 hours of undergraduate course work before officially being enrolled as students in the School of Nursing. Upon successful completion of a minimum of 15 hours of nursing course work during the spring semester of 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

		Semester hours	
		FALL	SPRING
FRESHMAN YEAR			
HOD 1000	Applied Human Development	3	-
HOD 1001	Intrapersonal Development	1	-
HOD 1024	Interpersonal Development	-	1
HOD 1100	Small Group Behavior	-	3
Math	Mathematics Course	3	-
	Statistics Course	-	3
Philosophy	Philosophy Course	-	3
	Liberal Education Core	<u>10</u>	<u>4</u>
		17	14
SOPHOMORE YEAR			
HOD 1200	Understanding Organizations	3	-
HOD 1210	Perspectives of Organizational Fit	1	-
HOD 1700	Systematic Inquiry I	-	3
Econ 100	Economics	3	-
HOD 2525	Introduction to Health Services	3	-
N150	Microbiology	-	4
	Liberal Education Core	<u>6</u>	<u>9</u>
		16	16
JUNIOR YEAR*			
HOD 2100	Public Policy	3	-
HOD 2505	Introduction to Counseling	-	3
HOD 2510	Health Services Delivery to Diverse Populations	-	3
N210a, 210b	Human Anatomy and Physiology	4	4
N231	Introduction to Nutritional Health	2	-
	Liberal Education Core	<u>6</u>	<u>6</u>
		15	16

* Students apply for admission to the School of Nursing during their junior year.

		Fall	Spring	May/ Summer
SENIOR YEAR				
N215	Foundations of Professional Nursing I	2	-	-
N225	Population Based Health Care	2	-	-
N235	Human Experience of Health and Illness across the Lifespan I	4	-	-
N245	Fundamentals of Clinical Practice*	5	-	-
N255	Basic Pharmacology	2	-	-
N216	Professional Nursing Seminar	-	1	-
N226	Health Care Systems: Micro Issues	-	2	-

N231b	Nutrition and Health: Issues and Insights	-	1	
N236	Human Experience of Health and Illness across the Lifespan II	-	5	-
N246	Integration of Theoretical & Clinical Aspects of Nursing I*	-	4	-
N256	Strategies for Improving Self-Care	-	2	
N217	Foundations of Professional Nursing II	-	-	3
N227	Health Care Systems:Macro Issues	-	-	2
N237	Human Experience of Health and Illness across the Lifespan III	-	-	4
N247a	Integration of Theoretical & Clinical Aspects of Nursing II	-	-	2
N247b	Integration of Theoretical & Clinical Aspects of Nursing III	-	-	2
			15	14
				13

* Acceptable as undergraduate Human and Organizational Development practicum/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. degree. Refer to the *School of Nursing Catalog* for requirements for the completion of the M.S.N.

LIBRARY



PEABODY LIBRARY

HOURS

MONDAY - FRIDAY
10:00 AM - 5:00 PM

SATURDAY
10:00 AM - 4:00 PM

SUNDAY
12:00 PM - 5:00 PM

Special Hours for the Peabody Museum
See Website for Details

A special notice
for the Peabody
Museum
for the
Peabody
Library



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

COMMUNICATIONS.

Communication Studies 100, Fundamentals of Public Speaking; 101, Interpersonal Communication; 230, Theory of Communication

ENGLISH.

(A total of 3 hours from 104W, 105W, 106W, 109W)

English 112W, Introduction to Poetry, or 120W, Intermediate Composition; ENED 2200, Exploring Literature with Children, plus a 200-level English course

LINGUISTICS.

PSY 2000, Language and Representational Systems; ENED 2280, Language Study in the Elementary and Secondary Classroom

ELECTIVES.

Select two from the following: Communications Studies 220, Rhetoric of Mass Media; 221, Rhetoric of the American Experience; 223, Values in Modern Communication; Theatre 100, Fundamentals of Theatre; Philosophy 102, General Logic; Political Science 242*, Political Communication; English 240, The History of the English Language, or ENED 2920, Literature for Adolescents

*Prerequisite: Political Science 100, 101, or 102

Mathematics and Science Studies

PHYSICAL SCIENCE.

Take 8 hours from the following: Chemistry 101a-101b, Introductory Chemistry; Physics 110a-110b and 111a-111b, Introductory Physics and Laboratory

BIOLOGICAL SCIENCES.

100, General Biology

GEOLOGY/ASTRONOMY.

One of the following: Geology 100, Environmental Geology, or 101, The Dynamic Earth, or 102, Geological History of the Earth, or 103, Oceanography, or 106, Marine and Coastal Environments; or Astronomy 102, Introductory Astronomy: Stars and Galaxies

HISTORY/PHILOSOPHY.

One of the following: History 202, Science and Society after the Enlightenment, or 204, History of Medicine; or Astronomy 130, History of Astronomy; or Philosophy 244, Philosophy and the Natural Sciences; or SCED 2200, Science for Elementary Teachers

CALCULUS.

Mathematics 150a-150b, First-year Calculus, and 170a, Second-year Calculus; or 155a-155b, First-year Accelerated Calculus

One course from two of the following:

PROBABILITY AND STATISTICS.

Mathematics 180, Fundamentals of Probability and Statistics, or 214, Discrete Structures, or 215, Discrete Mathematics, or 218, Introduction to Mathematical Statistics, or Psychology 2101, Introduction to Statistical Analysis

GEOMETRY.

Mathematics 210, Axiomatic Geometry, or 240, Transformation Geometry

ALGEBRA.

Mathematics 194, Methods of Linear Algebra, or 223, Abstract Algebra, or 204, Linear Algebra

ELECTIVES.

3 additional hours from any 200-level course in Mathematics

Natural Science Studies

CHEMISTRY.

Chemistry 101a-101b, Introductory Chemistry; or 102a-102b, General Chemistry and 104a-104b, General Chemistry Laboratory

PHYSICS.

Physics 110a-110b and 111a-111b, Introductory Physics and Laboratory; or 117a-117b, General Physics

BIOLOGICAL SCIENCES.

100, General Biology and 219, Introduction to Zoology, or 218, Introduction to Botany

GEOLOGY/ASTRONOMY.

Geology 100, Environmental Geology, or 101, The Dynamic Earth, or 102, Geological History of the Earth, or 103, Oceanography, or 106, Marine and Coastal Environments; or Astronomy 102, Introductory Astronomy: Stars and Galaxies

HISTORY/PHILOSOPHY.

History 202, Science and Society after the Enlightenment, or 204, History of Medicine; or Astronomy 130, History of Astronomy; or Philosophy 244, Philosophy and the Natural Sciences; or SCED 2200, Science for Elementary Teachers

ELECTIVES.

Additional hours in Chemistry, Physics, Biological Sciences, Geology, Astronomy, History, or independent research for at least 6 hours

Social Studies

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 coursework 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

ANTHROPOLOGY.

101, Introduction to Anthropology; 103, Origins and Evolution of Human Culture; 104, The Rise and Fall of Civilization

A Comparative Anthropology and Anthropological Theory Course

An Archaeology and Physical Anthropology Course

A Ethnography, Ethnohistory, and Linguistics Course

Six courses drawn from at least three areas:

Economics 100, 101, 226

History 100 or 101, 170 or 171, 190, 200, 220, 271

Political Science 100, 101, or 102; 204, 210, 217, 221, 244, 245

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

Economics

ECONOMICS.

100, Principles of Macroeconomics; 101, Principles of Microeconomics; 150, Economic Statistics, and three other courses from Economics

Six courses drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

History 100 or 101, 170 or 171, 190, 200, 220, 271

Political Science 100, 101, or 102; 204, 210, 217, 221, 244, 245

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

American History

HISTORY.

170, History of the U.S. to 1865; 171, History of the U.S. since 1865

Plus four courses on American History (267-292)

Six courses drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

Economics 100, 101, 226

Political Science 100, 101, or 102; 204, 210, 217, 221, 244, 245

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

European History

HISTORY.

100, History of Western Civilization to 1700; 101, History of Western Civilization since 1700
Plus four courses on European History (208-245)

Six courses drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

Economics 100, 101, 226

Political Science 100, 101, or 102; 204, 210, 217, 221, 244, 245

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

American Politics

POLITICAL SCIENCE.

100, Intro. To American Government and Politics

Any five of the following PSCI courses: 204, 222, 223, 240-262

Six courses drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

Economics 100, 101, 226

History 100 or 101, 170 or 171, 190, 200, 220, 271

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

World Politics

POLITICAL SCIENCE.

101, Introduction to Comparative Politics, or 102, Introduction to International Politics

Any five of the following PSCI courses: 210-228

Six courses drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

Economics 100, 101, 226

History 100 or 101, 170 or 171, 190, 200, 220, 271

Sociology 101 or 102, 201, 230, 236, 244, 248, 249, 250, 254, 255

Sociology

SOCIOLOGY.

101 or 102, 201

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 drawn from at least three areas:

Anthropology 101, 102, 103, 104, 206, 207, 237

Economics 100, 101, 226

History 100 or 101, 170 or 171, 190, 200, 220, 271

Political Science 100, 101, or 102; 204, 210, 217, 221, 244, 245

Major in Child Development

CHAIR Kathleen V. Hoover-Dempsey

DIRECTOR OF UNDERGRADUATE STUDIES Craig A. Smith

PROFESSOR EMERITA Penelope H. Brooks

PROFESSORS David Cole, Bruce E. Compas, Elisabeth Dykens, Judy Garber, John J. Rieser, Howard M. Sandler, Tedra Ann Walden

ASSOCIATE PROFESSORS Kathleen V. Hoover-Dempsey, Daniel T. Levin, Bahr H. Weiss

ASSISTANT PROFESSORS Jessica W. Giles, Susan J. Hespos, Bethany Rittle-Johnson, Megan M. Saylor, Georgene L. Troseth

ASSISTANT CLINICAL PROFESSORS Vicki S. Harris, Patti Parkison Van Eys

SENIOR LECTURERS Steven A. McFadyen-Ketchum, Francis Joseph McLaughlin III,

Caprice Niccoli-Waller

1 THE child development major is designed for students who wish to study children (infancy through adolescence) and the major 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 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 *Student 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.

Comparative Literature 105W, 106W, 107W, 108W

Communication Studies (All Communication Studies courses except 280a, 280b, 280c, 289, 290, 295, 296)

English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W, 122, 123, 200, 201

Humanities 105W, 106W, 107W, 108W, 115W

Theatre 100, 115W

HUMANITIES. 9 hours. The Humanities area cannot be met with three Philosophy courses. Two different fields are required.

Philosophy (3 hours) from the following courses:

Classical Studies 210, 218

Comparative Literature 260

Philosophy (All Philosophy courses except 289a, 289b, and 295); 105 is recommended

Political Science 203

Psychology 256

Other Humanities courses (6 hours) from the following courses:

Art and Art History 110, 111, 115, 115W, 130, 200 and up (except 202, 207a, 207b, 209, 225, 235a, 235b, 243, 250a, 250b, 260, 265a, 265b, 280a, 280b, 289, 290, 293, 298, 299)

Anthropology 130, 245, 255, 256, 257

Astronomy 203

Chinese 202, 214, 216, 241, 242, 251, 252

Classical Studies 115W, 130, 146, 150, 160, 203, 204, 205, 206, 210, 211, 217, 218, 220, 224

Comparative Literature 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 260, 278, 284, 285, 286, 287

Computer Science 151

East Asian Studies 133

English (If the course selected has not been used to satisfy the Communications area) 104W, 105W, 106W, 109W, 112W, 115W, 118W, 125, 208a and up (except 269, 289a and up)

Film Studies 125, 133

French 101b and up (except 289 and up)

German 102 and up (except 289a and up)

Greek 202 and up (except 289)

Hebrew 111a and up (except 289a and up)

History 180, 244

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 241, 278, 284, 285, 286, 287

Italian 101b and up (except 289 and 294)

Japanese 202 and up (except 289a, 289b)

Latin 102 and up (except 289)

Music MUSC 100 and up (except 299); MUSL 103 and up (except 141, 160, 170, 289 and up); MUSO 103 (MUSO 100 does not count)

Philosophy 100 and up (except 289a, 289b, and 294)

Physics 238

Portuguese 102 and up (except 223, 289, and 294)

Psychology 256

Religious Studies 100 and up (except 280 and up)

Russian 102 and up (except 171, 172, 257, 258, 289 and up)

Sociology 217, 279

Spanish 102 and up (except 280, 289 and up)

Theatre 100, 115W, 170, 201, 202, 203, 204, 232, 271

Women's Studies 271

MATHEMATICS. 6 hours.

Statistics (3 hours)

PSY 2101

Mathematics (3 hours): SAT II Math Test Score Level I of 620 and up or Level II of 570 and up will exempt a student from the three-hour Mathematics requirement. Academic credit is not awarded for SAT II Scores.

Mathematics 133, 140, 150a, 150b, 155a, 155b, 165, 180; Computer Science 212

NATURAL SCIENCE. 7 hours. One Biological Sciences course is required.

One lab science (4 or 5 hours) from the following courses:

Astronomy 102, 175

Biological Sciences 100, 110a and 111a, 110b and 111b, 218, 219

Chemistry 101a, 101b, 102a and 104a, 102b and 104b

Geology 101 and 111, 102, 103 and 113, 225

Nursing 150, 210a, 210b

Physics 101, 105 and 106, 110a and 111a, 110b and 111b, 117a, 117b, 121a, 121b

And

One of the following (3 hours) (Must be a Biological Sciences course, if not taken as the lab science course):

Astronomy 130

Biological Sciences 105, 110a, 110b

Chemistry 102a, 102b
 Geology 100, 101, 103, 106, 108, 150
 Neuroscience 201
 Nursing 231a and 231b
 Physics 105, 110a, 110b

Or

Two lab science courses (8-10 hours) will meet the Natural Sciences requirement, as long as one is a Biological Sciences course.

SOCIAL SCIENCES. (9 hours) from two fields:

Cultural Studies (3 hours) One course from the following:

African American Studies 101, 294a, 294b; Art and Art History 130, 200, 252, 253, 254; American and Southern Studies 100; Anthropology 130, 210, 214, 237, 247, 260, 266; East Asian Studies 133, 240; English 246, 260, 263, 271, 277; European Studies 201; German 271; History 155, 157, 187, 206, 222, 239, 247, 248, 249, 250, 253, 254, 264, 278, 280, 286, 287; Human and Organizational Development 2240; Music Literature 160, 170, 171; Philosophy 235; Political Science 214, 216, 219; Psychology 217, 244; Religious Studies 112, 113, 114, 130, 132, 133; Sociology 203, 224, 250, 251, 255, 256, 257, 261, 267; Women's Studies 240, 243, 270, 271

Other Social Science courses (6 hours) (3 hours of the 6 must be from a subject area other than the Cultural Studies selection):

African American Studies 101, 294a, 294b; American and Southern Studies 100; Anthropology (All regular Anthropology courses except 288a and up); Art and Art History 130, 245, 255, 256, 257; Biological Sciences 279; Classical Studies 207, 208, 209, 212, 213; Comparative Literature 237; Economics 100, 101, 226, 244, 245, 266, 271; Electrical Engineering 225; English 217, 246, 260, 263, 277, 279, 280; European Studies 230, 231; German 271; History (All regular History courses except 131, 283a and up); Human and Organizational Development 2470, 2890; Music Literature/History 141, 160, 170, 171; Philosophy 235, 256; Political Science 100 and up (except 289 and up); Psychology–A&S (All regular courses except 209, 222, 225, 231, 242, 280a and up); Psychology–Peabody (All regular courses except 2101, 2102, and 2980); Religious Studies 180; Sociology (All regular Sociology courses except 280a and up); Women's Studies 240, 243, 270

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.

Note: 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.

WRITING REQUIREMENT.

SAT II Writing test score of 760 or above

or

SAT II Writing test score of 560 or above and one "W" course

or

Two "W" courses from the following list:

Art and Art History 115W; Anthropology 115W; Astronomy 115W; Classical Studies 115W; Comparative Literature 105W, 106W, 107W, 108W; Communication Studies 115W; Economics 115W; English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W; ES 210W; German 115W; History 115W; HON 181W; Humanities 105W, 106W, 107W, 108W, 115W; Music Literature 115W; Philosophy 100W, 115W; Portuguese 115W; Political Science 115W; Psychology 115W; Religious Studies 110W, 115W; Sociology 115W; Spanish 115W; Theatre 115W

Note: The courses listed in the writing requirement may also fulfill other Liberal Core areas. English 100W counts for elective credit and must be taken if the student has a score lower than 560 on the SAT II Writing Test. English 100 does not count for the writing requirement. Academic credit is not given for SAT II test scores.

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
- Psychology 2520. Observational Methods
- Psychology 2530. Psychometric Methods

Major Elective Area. A minimum of 9 hours.

Suggested courses include the following. 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. Parents and Their Developing Children
- Education 2130. Early Childhood Education: Programs, Curriculum, and Teaching
- Education 2140. Infants and Toddlers: Programs, Curriculum, and Teaching
- English Education 2100. Literature and Drama for Young Children
- English Education 2200. Exploring Literature for Children
- Psychology 233. Introduction to the Nervous System
- Psychology 1150. Freshman Seminar
- Psychology 1300. Cognition and Instruction
- Psychology 1600. Psychology of Thinking
- Psychology 1700. Social and Emotional Context of Cognition
- Psychology 2000. Language and Representational Systems
- Psychology 2100. Advanced Topical Seminars (This course is intended for students with junior or senior standing. May be repeated provided no duplication of content.)
- Psychology 2230. Family, Career, and Gender: Developmental Perspectives
- Psychology 2250. Infancy
- Psychology 2310. Educational Psychology
- Psychology 2320. Adolescent Development
- Psychology 2510. Experimental Methods
- Psychology 2520. Observational Methods
- Psychology 2530. Psychometric Methods
- Psychology 2560. Health Psychology
- Psychology 2610. Ethical and Moral Development

Psychology 2690.	Special Topic Seminars (These vary from semester to semester; any Psychology 2690 appropriate for Child Development is acceptable.)
Psychology 2691.	Developmental Neuroscience
Psychology 2692.	Developmental Psychobiology
Psychology 2700.	Introduction to Clinical Psychology.
Psychology 2810.*	Child Development Practicum
Psych/HOD 2890.	Ethical Issues in Human Services
Psychology 2970.*	Independent Study
Psychology 2980.*	Directed Research
Psychology 2990.*	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 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 & Personality Development

One of the following:

Psychology 2250.	Infancy
Psychology 2320.	Adolescent Development

One of the following:

Psychology 2510.	Experimental Methods
Psychology 2520.	Observational 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 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 at the end of the sophomore year, and admissions decisions are made during the student's junior year. 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*	3	-
Psychology 2102	Statistics*-	-	3
Nursing 150	Microbiology*-	-	4
One of the following:		3	-
Psychology 2250	Infancy		
Psychology 2320	Adolescent Development		
One of the following:		-	3
Psychology 2510	Experimental Methods		
Psychology 2520	Observational Methods		
Psychology 2530	Psychometric Methods		
	Liberal Education Core	10	6
		16	16

Application to the Nursing program: end of the sophomore year

JUNIOR YEAR	31 hours		
Nursing 210a	Anatomy & Physiology I**	4	-
Nursing 210b	Anatomy & Physiology II**	-	4
Nursing 231	Nutrition	-	2
One of the following:		3	-
Psychology 2510	Experimental Methods		
Psychology 2520	Observational Methods		
Psychology 2530	Psychometric Methods		
	Child Development major elective area	6	6
	Liberal Education Core/Electives	3	3
		16	15

*Meets child development major requirement and Liberal Education Core requirement.

**Meets Five-Year Nursing Program requirement and Liberal Education Core requirement.

Pre-Specialty 5-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
Nursing 215	Foundations of Professional Nursing I	2	-
Nursing 225	Population-based Health Care	2	-
Nursing 235	Human Experience of Health and Illness I	4	-
Nursing 245	Fundamentals for Clinical Practice	5	-
Nursing 255	Pharmacology of Nursing	2	-
Semester Total		15	
Nursing 216	Professional Nursing Seminar		1
Nursing 226	Health Care Systems I	-	2
Nursing 236	Human Experience of Health and Illness II	-	5
Nursing 246	Integration of Theoretical and Clinical Aspects of Nursing I	-	4
Nursing 256	Strategies for Improving Self-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
Nursing 217	Foundations of Professional Nursing II	3
Nursing 227	Health Care Systems II	2
Nursing 237	Human Experience of Health & Illness III	4
Nursing 247	Integration of Theoretical and Clinical Aspects of Nursing II	4
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.

		Fall	Spring	Summer
Nursing 308	Models and Theories in Nursing	3	-	-
Nursing 375	Research Methods	3	-	-
Nursing 376	Inquiry in Nursing	-	3	-
	Specialty Nursing Courses	7	7	7
	Electives	-	3	6
		13	13	13

FALL 13 + SPRING 13 + SUMMER 13 = 39 hours

Major in Child Studies

CHAIR Kathleen V. Hoover-Dempsey

DIRECTOR OF UNDERGRADUATE STUDIES Craig A. Smith

PROFESSORS David A. Cole, Bruce E. Compas, David S. Cordray, Elisabeth Dykens,
Dale C. Farran, Judy Garber, John J. Rieser, James H. Steiger, Howard M. Sandler,
Tedra Ann Walden, Niels G. Waller

ASSOCIATE PROFESSORS Kathleen V. Hoover-Dempsey, Daniel T. Levin, Laura R. Novick,
Craig A. Smith, Bahr Weiss

ASSISTANT PROFESSORS Jessica W. Giles, Susan Hespos, Bethany Rittle-Johnson,
Megan Saylor, Georgene L. Troseth

ASSISTANT CLINICAL PROFESSORS Vicki S. Harris, Patti Parkison van Eys

SENIOR LECTURERS Steven A. McFadyen-Ketchum, Caprice Niccoli-Walker

1 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.

Liberal Education Core Requirements. Minimum 40 hours.

COMMUNICATIONS. *6 hours.*

Comparative Literature 105W, 106W, 107W, 108W

Communication Studies (All Communication Studies courses except 280a, 280b, 280c,
289, 290, 295, 296)

English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W, 122, 123, 200, 201

Humanities 105W, 106W, 107W, 108W, 115W

Theatre 100, 115W

HUMANITIES. *9 hours.* Two different fields are required.

Art and Art History 110, 111, 115, 115W, 130, 200 and up (except 202, 207a, 207b, 209,
225, 235a, 235b, 243, 250a, 250b, 260, 265a, 265b, 280a, 280b, 289, 290, 293, 298,
299)

Anthropology 130, 245, 255, 256, 257

Astronomy 203

Chinese 202, 214, 216, 241, 242, 251, 252

Classical Studies 115W, 130, 146, 150, 160, 203, 204, 205, 206, 210, 211, 217, 218, 220, 224

Comparative Literature 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 260, 278, 284, 285, 286, 287

Computer Science 151

East Asian Studies 133

English (If the course selected has not been used to satisfy the Communications area)
104W, 105W, 106W, 109W, 112W, 115W, 118W, 125, 208a and up (except 269, 289a and up)

Film Studies 125, 133

French 101b and up (except 289 and up)

German 102 and up (except 289a and up)

Greek 202 and up (except 289)

Hebrew 111a and up (except 289a and up)

History 180, 244

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 241, 278, 284, 285, 286, 287

Italian 101b and up (except 289 and 294)

Japanese 202 and up (except 289a, 289b)

Latin 102 and up (except 289)

Music MUSC 100 and up (except 299); MUSL 103 and up (except 141, 160, 170, 289 and up); MUSO 103 (MUSO 100 does not count)

Philosophy 100 and up (except 289a, 289b, and 294)

Physics 238

Portuguese 102 and up (except 223, 289, and 294)

Psychology 256

Religious Studies 100 and up (except 280 and up)

Russian 102 and up (except 171, 172, 257, 258, 289 and up)

Sociology 217, 279

Spanish 102 and up (except 280, 289 and up)

Theatre 100, 115W, 170, 201, 202, 203, 204, 232, 271

Women's Studies 271

MATHEMATICS. 6 hours.

Statistics (3 hours)

PSY 2101

Mathematics (3 hours): SAT II Math Test Score Level I of 620 and up or Level II of 570 and up will exempt a student from the three-hour Mathematics requirement. Academic credit is not awarded for SAT II Scores.

Mathematics 133, 140, 150a, 150b, 155a, 155b, 165, 180; Computer Science 212

NATURAL SCIENCES. 7 hours. One Biological Sciences course is required.

One lab science (4 or 5 hours) from the following courses:

Astronomy 102, 175

Biological Sciences 100, 110a and 111a, 110b and 111b, 218, 219

Chemistry 101a, 101b, 102a and 104a, 102b and 104b

Geology 101 and 111, 102, 103 and 113, 225

Nursing 150, 210a, 210b

Physics 101, 105 and 106, 110a and 111a, 110b and 111b, 117a, 117b, 121a, 121b

And

One of the following (3 hours) (Must be a Biological Sciences course, if not taken as the lab science course):

Astronomy 130

Biological Sciences 105, 110a, 110b
 Chemistry 102a, 102b
 Geology 100, 101, 103, 106, 108, 150
 Neuroscience 201
 Nursing 231a and 231b
 Physics 105, 110a, 110b

Or

Two lab science courses (8-10 hours) will meet the Natural Sciences requirement.

SOCIAL SCIENCES. *9 hours from two fields:*

Cultural Studies (3 hours). One course from the following:

African American Studies 101, 294a, 294b; Art and Art History 130, 200, 252, 253, 254; American and Southern Studies 100; Anthropology 130, 210, 214, 237, 247, 260, 266; East Asian Studies 240; English 246, 260, 263, 271, 277; European Studies 201; German 271; History 155, 157, 187, 206, 222, 239, 247, 248, 249, 250, 253, 254, 264, 278, 280, 286, 287; Human and Organizational Development 2240; Music Literature 160, 170, 171; Philosophy 235; Political Science 214, 216, 219; Psychology 217, 244; Religious Studies 112, 113, 114, 130, 132, 133; Sociology 203, 224, 250, 251, 253, 255, 256, 257, 261, 267; Women's Studies 240, 243, 270, 271

Other Social Science courses (6 hours). (3 hours of the 6 must be from a subject area other than the Cultural Studies selection):

African American Studies 101, 294a, 294b; American and Southern Studies 100; Anthropology (All regular Anthropology courses except 288a and up); Art and Art History 130, 245, 255, 256, 257; Biological Sciences 279; Classical Studies 207, 208, 209, 212, 213; Comparative Literature 237; Economics 100, 101, 226, 244, 245, 266, 271; Electrical Engineering 225; English 217, 246, 260, 263, 277, 279, 280; European Studies 230, 231; German 271; History (All regular History courses except 131, 283a and up); Human and Organizational Development 2470, 2890; Music Literature/History 141, 160, 170, 171; Philosophy 235, 256; Political Science 100 and up (except 289 and up); Psychology–A&S (All regular courses except 209, 222, 225, 231, 242, 280a and up); Psychology–Peabody (All regular courses except 2101, 2102, and 2980); Religious Studies 180; Sociology (All regular Sociology courses except 280a and up); Women's Studies 240, 243, 270

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.

Note: Special topics 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.

WRITING REQUIREMENT.

SAT II Writing test score of 760 or above

or

SAT II Writing test score of 560 or above and one "W" course

or

Two "W" courses from the following list:

Art and Art History 115W; Anthropology 115W; Astronomy 115W; Classical Studies 115W; Comparative Literature 105W, 106W, 107W, 108W; Communication Studies 115W; Economics 115W; English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W; ES 210W; German 115W; History 115W; HON 181W; Humanities 105W, 106W, 107W, 108W, 115W;

Music Literature 115W; Philosophy 100W, 115W; Portuguese 115W; Political Science 115W; Psychology 115W; Religious Studies 110W, 115W; Sociology 115W; Spanish 115W; Theatre 115W

Note: The courses listed in the writing requirement may also fulfill other Liberal Core areas. English 100W counts for elective credit and must be taken if the student has a score lower than 560 on the SAT II Writing Test. English 100 does not count for the writing requirement. Academic credit is not given for SAT II test scores.

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 1300. Cognition and Instruction
 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
 Psychology 2520. Observational Methods
 Psychology 2530. Psychometric Methods
 HOD 1700. Systematic Inquiry

FAMILIES, COMMUNITY, AND DIVERSITY. *6 hours.*

Special Education 1010. Introduction to Exceptionality
 Education 1020. Society, School, and the Teacher
 Education 2120. Parents and their Developing Children
 Special Education 2020. Family Intervention
 Education 2920. Social and Philosophical Aspects of Education
 HOD 2510. Health Service Delivery to Diverse Populations
 HOD 2600. Social Problems I
 Psychology 2470. Introduction to Community Psychology

LANGUAGE AND LITERACY. *6 hours.*

Special Education 2030. Introduction to Language and Communication
 EDUC 2115. Language and Literacy Learning in Young Children
 Psychology 2000. Psychology and Language
 English Education 2100. Literature and Drama for Young Children
 English Education 2200. Exploring Literature for Children

ELECTIVES IN CHILD STUDIES. *9 hours.*

All courses listed above and
 Psychology 1150. Freshman Seminar

-
- Psychology 2100. Advanced Topical Seminars (This course is intended for students with junior or senior standing. May be repeated provided no duplication of content.)
- Psychology 2102. Statistical Analysis
- Psychology 2700. Introduction to Clinical Psychology
- Psychology 2810.* Practicum: Child Development
- Psychology 2970.* Independent Study
- Psychology 2980.* Readings and Research for Undergraduates
- Psychology 2990.* 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.



SOCIAL RELIGIOUS BUILDING
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Major in Cognitive Studies

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Megan M. Saylor, Georgene L. Troseth

RESEARCH ASSISTANT PROFESSOR Julia Noland

SENIOR LECTURERS Steven A. McFadyen-Ketchum, Caprice Niccoli-Walker

1 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 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 Cognitive Studies Program.

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.*

Comparative Literature 105W, 106W, 107W, 108W

Communication Studies (All Communication Studies courses except 280a, 280b, 280c, 289, 290, 295, 296)

English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W, 122, 123, 200, 201

Humanities 105W, 106W, 107W, 108W, 115W

Theatre 100, 115W

HUMANITIES. *9 hours.* Two different fields are required.

Art and Art History 110, 111, 115, 115W, 130, 200 and up (except 202, 207a, 207b, 209, 225, 235a, 235b, 243, 250a, 250b, 260, 265a, 265b, 280a, 280b, 289, 290, 293, 298, 299)

Anthropology 130, 245, 255, 256, 257

Astronomy 203

Chinese 202, 214, 216, 241, 242, 251, 252

Classical Studies 115W, 130, 146, 150, 160, 203, 204, 205, 206, 210, 211, 217, 218, 220, 224

Comparative Literature 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 260, 278, 284, 285, 286, 287

Computer Science 151

East Asian Studies 133

English (If the course selected has not been used to satisfy the Communications area)

104W, 105W, 106W, 109W, 112W, 115W, 118W, 125, 208a and up (except 269, 289a and up)

Film Studies 125, 133

French 101b and up (except 289 and up)

German 102 and up (except 289a and up)

Greek 202 and up (except 289)

Hebrew 111a and up (except 289a and up)

History 180, 244

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 241, 278, 284, 285, 286, 287

Italian 101b and up (except 289 and 294)

Japanese 202 and up (except 289a, 289b)

Latin 102 and up (except 289)
 Music MUSC 100 and up (except 299); MUSL 103 and up (except 141, 160, 170, 289 and up); MUSO 103 (MUSO 100 does not count)
 Philosophy 100 and up (except 289a, 289b, and 294)
 Physics 238
 Portuguese 102 and up (except 223, 289, and 294)
 Psychology 256
 Religious Studies 100 and up (except 280 and up)
 Russian 102 and up (except 171, 172, 257, 258, 289 and up)
 Sociology 217, 279
 Spanish 102 and up (except 280, 289 and up)
 Theatre 100, 115W, 170, 201, 202, 203, 204, 232, 271
 Women's Studies 271

MATHEMATICS. 6 hours.

Statistics (3 hours)

PSY 2101

Mathematics (3 hours): SAT II Math Test Score Level I of 620 and up or Level II of 570 and up will exempt a student from the three-hour Mathematics requirement. Academic credit is not awarded for SAT II Scores.

Mathematics 133, 140, 150a, 150b, 155a, 155b, 165, 180; Computer Science 212

NATURAL SCIENCES. 7 hours.

One lab science (4 or 5 hours) from the following courses:

Astronomy 102, 175

Biological Sciences 100, 110a and 111a, 110b and 111b, 218, 219

Chemistry 101a, 101b, 102a and 104a, 102b and 104b

Geology 101 and 111, 102, 103 and 113, 225

Nursing 150, 210a, 210b

Physics 101, 105 and 106, 110a and 111a, 110b and 111b, 117a, 117b, 121a, 121b

And

One of the following (3 hours):

Astronomy 130

Biological Sciences 105, 110a, 110b

Chemistry 102a, 102b

Geology 100, 101, 103, 106, 108, 150

Neuroscience 201

Nursing 231a and 231b

Physics 105, 110a, 110b

Or

Two lab science courses (8-10 hours) will meet the Natural Sciences requirement.

SOCIAL SCIENCES (9 hours) from two fields:

Cultural Studies (3 hours). One course from the following:

African American Studies 101, 294a, 294b; Art and Art History 130, 200, 252, 253, 254;

American and Southern Studies 100; Anthropology 130, 210, 214, 237, 247, 260, 266;

East Asian Studies 240; English 246, 260, 263, 271, 277; European Studies 201; German

271; History 155, 157, 187, 206, 222, 239, 247, 248, 249, 250, 253, 254, 264, 278, 280,

286, 287; Human and Organizational Development 2240; Music Literature 160, 170,

171; Philosophy 235; Political Science 214, 216, 219; Psychology 217, 244; Religious

Studies 112, 113, 114, 130, 132, 133; Sociology 203, 224, 250, 251, 255, 256, 257,

261, 267; Women's Studies 240, 243, 270, 271

Other Social Science courses (*6 hours*) (3 hours of the 6 must be from a subject area other than the Cultural Studies selection):

African American Studies 101, 294a, 294b; American and Southern Studies 100; Anthropology (All regular Anthropology courses except 288a and up); Art and Art History 130, 245, 255, 256, 257; Biological Sciences 279; Classical Studies 207, 208, 209, 212, 213; Comparative Literature 237; Economics 100, 101, 226, 244, 245, 266, 271; Electrical Engineering 225; English 217, 246, 260, 263, 277, 279, 280; European Studies 230, 231; German 271; History (All regular History courses except 131, 283a and up); Human and Organizational Development 2470, 2890; Music Literature/History 141, 160, 170, 171; Philosophy 235, 256; Political Science 100 and up (except 289 and up); Psychology-A&S (All regular courses except 209, 222, 225, 231, 242, 280a and up); Psychology-Peabody (All regular courses except 2101, 2102, and 2980); Religious Studies 180; Sociology (All regular Sociology courses except 280a and up); Women's Studies 240, 243, 270

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.

Note: Special topics 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.

WRITING REQUIREMENT.

SAT II Writing test score of 760 or above

or

SAT II Writing test score of 560 or above and one "W" course

or

Two "W" courses from the following list:

Art and Art History 115W; Anthropology 115W; Astronomy 115W; Classical Studies 115W; Comparative Literature 105W, 106W, 107W, 108W; Communication Studies 115W; Economics 115W; English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W; ES 210W; German 115W; History 115W; HON 181W; Humanities 105W, 106W, 107W, 108W, 115W; Music Literature 115W; Philosophy 100W, 115W; Portuguese 115W; Political Science 115W; Psychology 115W; Religious Studies 110W, 115W; Sociology 115W; Spanish 115W; Theatre 115W

Note: The courses listed in the writing requirement may also fulfill other Liberal Core areas. English 100W counts for elective credit and must be taken if the student has a score lower than 560 on the SAT II Writing Test. English 100 does not count for the writing requirement. Academic credit is not given for SAT II test scores.

Major Requirements. 27-28 hours.

Students take a minimum of 27 hours in Cognitive Studies. The core consists of four courses (12 hours) and a minimum five additional courses (15 hours) in the elective area. In addition, two courses (6 hours) are required in the Methods of Inquiry area.

Major Core. 12 hours.

Psychology 1200. Minds, Brains, Contexts, and Cultures

Psychology 1600. Psychology of Thinking

Psychology 2100. Advanced Topical Seminar

and Psychology 2510. Experimental Methods

or Psychology 208. Research Methods

Major Elective Area. 15 hours

- Psychology 1150. Freshman Seminar
 Psychology 1300. Cognition and Instruction
 Psychology 1500. Cognitive Aspects of Human Development
 Psychology 1700. Social and Emotional Context of Cognition
 Psychology 1750. Social and Personality Development
 Psychology 2000. Psychology and Language
 Psychology 2100. Advanced Topical Seminar (Intended for students with junior or senior standing. May be repeated if no duplication of content.)
 Psychology 2310. Educational Psychology
 Psychology 2700. Introduction to Clinical Psychology
 Psychology 2970.* Independent Study
 Psychology 2980.* Directed Research
 Psychology 2990.* 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
 Economics 150
 Geology 225
 HOD 1700
 Philosophy 102, 244
 Psychology 2102, 2520, 2530
 Psychology 2980, 2990 (Only 3 hours from either of these courses can be applied to this requirement)
 Religious Studies 240
 Sociology 211
 Special Education 2110 (with 2111)

*Second Major and Electives. 51–52 hours.***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
 Psychology 1600. Psychology of Thinking

ELECTIVE COURSES. *9 hours.*

- Psychology 1150. Freshman Seminar
Psychology 1300. Cognition and Instruction
Psychology 1500. Cognitive Aspects of Human Development
Psychology 1700. Social and Emotional Context of Cognition
Psychology 1750. Social and Personality Development
Psychology 2000. Psychology and Language
Psychology 2100. Advanced Topical Seminar (Intended for students with junior or senior standing. May be repeated if no duplication of content.)
Psychology 2310. Educational Psychology
Psychology 2560. Health Psychology
Psychology 2700. Introduction to Clinical Psychology
Psychology 2980. Directed Research (may *not* be repeated for minor credit)
Special Education 2030. Introduction to Language and Communication

Majors in Early Childhood, Elementary, and Secondary Education

CHAIR, DEPARTMENT OF TEACHING AND LEARNING Leona Schauble
PROFESSORS EMERITI Jerold P. Bauch, Carolyn M. Evertson, Elizabeth Spencer Goldman,
Charles B. Myers
PROFESSORS Paul A. Cobb, Dale C. Farran, Rogers Hall, Robert Jimenez, Richard Lehrer,
Victoria J. Risko, Leona Schauble, Patrick W. Thompson
PROFESSOR OF THE PRACTICE EMERITA Earline D. Kendall
ASSOCIATE PROFESSORS Clifford A. Hofwolt, Deborah W. Rowe, Robert D. Sherwood
ASSOCIATE PROFESSOR OF THE PRACTICE Ann M. Neely
ASSISTANT PROFESSORS Kefyn M. Catley, Kevin M. Leander, Kay Johnson McClain,
Henry Richard Milner, Carin L. Neitzel
ASSISTANT PROFESSORS OF THE PRACTICE Amy B. Palmeri, Marie Hardenbrook
ASSISTANT CLINICAL PROFESSORS Tisha L. Bennett, Ana Christina Iddings, Karon Jean
Nicol-LeCompte
SENIOR LECTURERS Camille Holt, Margaret W. Smithey

Early Childhood Education

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1 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. 62 hours.

COMMUNICATIONS. 7 hours.

Common Core: 6 hours.

At least one English course is required. A communication studies or theatre course is also required.

One of: English 104W, 105W, 106W, 109W, 112W, 118W, 120W, 122, 123, 200, 201

One of: Communication Studies 100, 101 or Theatre 100

Plus: ED 2040

HUMANITIES. 9 hours.

Common Core: 9 hours.

One of:

Classics 130, 146, 150, 160, 203-206, 211, 220

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 224

Theatre 100, 201, 202, 203, 204, 232, 271

English 104W, 105W, 106W, 109W, 112W, 118W

English 208a or above

Chinese 202

French 101b and above

German 102 and above

Greek 202 and above

Hebrew 111b and above

Italian 101b and above

Japanese 202 and above

Latin 102 and above

Portuguese 200 and above

Russian 102 and above

Spanish 102 and above

Philosophy (Any course)

Religion (Any course)

Women's Studies 271

One Elective from either Art and Art History or Music (except MUSO 100)

Required: ENED 2100

MATHEMATICS. 9 hours.

Common Core: 6 hours.

Required: One Math course and one Statistics course (Math 127a or PSY 2101)

Plus: MTED 2100

NATURAL SCIENCE. 7 hours.

Common Core: 7 hours. Must include 1 lab.

One of: Chemistry, Geology, Physics, Astronomy, or SCED 2200

Required: Biological Sciences (BSCI 105 recommended)

SOCIAL SCIENCES. 12 hours.

Common Core: 12 hours.

Required: One course in United States History

Required: One course in the study of a culture other than your own

African American Studies 101, 294a, 294b
 Anthropology 130, 210, 214, 237, 247
 Art and Art History 200, 252, 253, 254
 East Asian Studies 240
 English 263, 271
 History 155, 157, 239, 247-50, 253, 264, 278, 280
 Music Literature 160, 170, 171
 Political Science 102, 214, 216, 217, 219
 Religious Studies 112, 113, 114, 130, 132, 133
 Sociology 255

Required: PSY 1630, SSED 2100

LIBERAL EDUCATION ELECTIVES. 18 hours.

Professional Education Core. 24 hours.

EDUC 2117, 2130, 2140, 2150, 2170, 2180; HMED 2150; SPED 2420

Field Experiences. 15 hours.

EDUC 2116, 2151, 2291, 2702; SPED 2421

Interdisciplinary Major: Child Studies 36 hours.

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Elementary Education

1 THE major in elementary education is field-oriented and designed to prepare students to teach children in grades K-8. 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.

B.S. Degree Requirements Elementary Education (K–8 Licensure)

Liberal Education Core Requirements. 60 hours.

COMMUNICATIONS. 7 hours.

Common Core: 6 hours.

At least one English course is required. A communication studies or theatre course is also required.

One of: English 104W, 105W, 106W, 109W, 112W, 118W, 120W, 122, 123, 200, 201

One of: Communication Studies 100, 101, or Theatre 100

Plus: EDUC 2040

HUMANITIES. 9 hours.

Common Core: 9 hours.

One of:

Classics 130, 146, 150, 160, 175, 203-206, 211, 220

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 224

Theatre 100, 201, 202, 203, 204, 232, 271

English 104W, 105W, 106W, 109W, 112W, 118W

English 208a or above

Chinese 202

French 101b and above

German 102 and above

Greek 202 and above

Hebrew 111b and above

Italian 101b and above

Japanese 202 and above

Latin 102 and above

Portuguese 200 and above

Russian 102 and above

Spanish 102 and above

Religion: Any course

Philosophy: Any course

Women's Studies 271

One Elective from either Art and Art History or Music (except MUSO 100)

One of: ENED 2200 or 2920

MATHEMATICS. 9 hours.

Common Core: 6 hours.

Two Math courses or one Math course and PSY 2101

Plus: MTED 2200

NATURAL SCIENCE. 11 hours. At least two laboratory science courses are required.

Common Core: 7 hours, 1 lab.

Biological Sciences 101 or

Chemistry 101a or

Physics 110a & 111a or

Plus: SCED 2200

Plus 4 hours: Chemistry 100, 101b, 102a & 104a, 102b & 104b

Biological Sciences 100, 105, 218, 219

Geology 100 or 101, 102, 103
Physics 101, 105/106, 110b & 111b, 117ab, 121ab
Astronomy 102, 175

SOCIAL SCIENCES. 9 hours.

Common Core: 9 hours.

Required: One course in United States History

Required: One course in the study of a culture other than your own

African American Studies 101, 294a, 294b
Anthropology 130, 210, 214, 237, 247
Art and Art History 200, 252, 253, 254
East Asian Studies 240
English 263, 271
History 155, 157, 239, 247-50, 253, 264, 278, 280
Music Literature 160, 170, 171
Political Science 102, 214, 216, 217, 219
Religious Studies 112, 113, 114, 130, 132, 133
Sociology 255

Required: PSY 1630

LIBERAL EDUCATION ELECTIVES. 15 hours.

Any non-education courses.

Professional Education Core. 28 hours.

EDUC 1020, 2215, 2217, 2270; MTED 2250; SCED 2250; SSED 2210; HMED 2250; SPED 1010; PSY 2310

Field Experiences. 15 hours.

EDUC 2210, 2216, 2250, 2290, 2701

Additional hours toward major or electives. 17 hours.

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

1 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. 60 hours.

COMMUNICATIONS. 7 hours.

Common Core: 6 hours.

One of: English 104W, 105W, 106W, 109W, 112W, 118W, 120W, 122, 123, 200, 201

One of: Communication Studies 100, 101, or Theatre 100

Plus: EDUC 2040

HUMANITIES. 9 hours. Courses from at least two areas required.

Humanities

Classics 130, 146, 150, 160, 203-206, 211, 220

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 224

Literature

Theatre 100, 201, 202, 203, 204, 232, 271

English 104W, 105W, 106W, 109W, 112W, 118W

English 208a or above

Language

Chinese 202

French 101b and above

German 102 and above

Greek 202 and above

Hebrew 111b and above
Italian 101b and above
Japanese 202 and above
Latin 102 and above
Linguistics 200 and above
Portuguese 200 and above
Russian 102 and above
Spanish 102 and above

Art and Art History (All regular Art and Art History courses)
Music (All regular courses offered through Blair except MUSO 100)
Philosophy (All regular courses)
Religion (All regular courses)
Women's Studies 271

MATHEMATICS. 6 hours.

Two courses from the Math Department, or one Math course and PSY 2101

NATURAL SCIENCE. 7 hours.

Common Core: 7 hours, 1 lab.

Any course from two of the following areas: Chemistry, Biological Sciences, Geology, Physics, or Astronomy

SOCIAL SCIENCES. 9 hours.

Common Core: 9 hours, 2 fields.

One course from each of the following areas required:

United States History

The study of a culture other than your own

African American Studies 101, 294a, 294b

Anthropology 130, 210, 214, 237, 247

Art and Art History 200, 252, 253, 254

East Asian Studies 240

English 263, 271

History 155, 157, 239, 247-50, 253, 264, 278, 280

Music Literature 160, 170, 171

Political Science 102, 214, 216, 217, 219

Religious Studies 112, 113, 114, 130, 132, 133

Sociology 255

Social Science elective.

LIBERAL EDUCATION ELECTIVES. 22 hours.

Any courses offered by the College of Arts and Science.

Professional Education Core. 20 hours.

EDUC 1020, 2310, 2320, 2920; SPED 1010; Teaching Methods course; PSY 2320

Field Experiences. 15 hours.

EDUC 2340, 2350, 2360; EDUC 2292, 2703

Additional hours toward major or electives. 25 hours



Major in Human and Organizational Development

CHAIR Joseph J. Cunningham

DIRECTOR OF UNDERGRADUATE STUDIES Robert B. Innes

PROFESSOR EMERITUS J. Robert Newbrough

PROFESSORS John M. Braxton, David S. Cordray, Robert L. Crowson, Jr., Paul R. Doeckci, Ellen B. Goldring, James W. Guthrie, Stephen P. Heyneman, James H. Hogge, William L. Partridge, Isaac Prilleltensky, Howard M. Sandler

PROFESSORS OF THE PRACTICE Vera A. Stevens Chatman, Janet S. Eyler, Sharon L. Shields

ASSOCIATE PROFESSOR EMERITUS Richard L. Percy

ASSOCIATE PROFESSORS R. Wilburn Clouse, Joseph J. Cunningham, Craig Anne Heflinger, Kathleen Hoover-Dempsey, Robert B. Innes, Douglas D. Perkins, Paul W. Speer

ASSOCIATE CLINICAL PROFESSOR Marsha Davis

ASSISTANT PROFESSORS Mark D. Cannon, Maury Nation, James O. Pawelski,

ASSISTANT CLINICAL PROFESSORS Victoria Davis, Brian A. Griffith, H. Lorraine Schnieders, Brian Williams

ASSISTANT PROFESSORS OF THE PRACTICE Bruce T. Caine, Gina L. Frieden

LECTURERS Susan K. Friedman, Linda Isaacs, Ora Prilleltensky

CLINICAL INSTRUCTOR Kristen Tompkins

1 THE Human and Organizational Development major is designed for students interested in careers that involve finding solutions to human problems in organizations and communities. Graduates are prepared to assume positions in corporations and businesses, government agencies, and non-profit organizations. Many students in the program enter graduate programs or professional programs in business, counseling, divinity, education, health promotion, human resource development, law, or medicine.

The curriculum is planned to ensure that students obtain a strong foundation in science and liberal arts, with emphasis on developing writing, oral presentation, and quantitative skills. Courses in the program's core curriculum concentrate on building basic skills in interpersonal communication, group leadership, organizational development, administration, and training. Students acquire an understanding of human behavior in groups, organizations, and larger systems.

In addition to the core curriculum, students select one of five areas of concentration that provide a focus for their study during the junior and senior years: Community Leadership and Development, Health and Human Services, International Leadership and Development, Leadership and Organizational Effectiveness, and Public Policy.

The program makes use of the active learning approach. Students learn new ideas and methods through seminars, simulation, role playing, case studies, field experiences, and interaction with professionals in the field. Students majoring in Human and Organizational Development are required to complete a semester-long internship that incorporates practicum experience with the completion of a specific project that enhances the effectiveness of the organization. The internship provides an opportunity for students to integrate the theories and concepts learned in prior courses with experience in an organizational setting. Students can apply for internships in Nashville, Atlanta, New York, San Francisco, Washington, D. C., and London, England.

Honors Program

The HOD Honors Program is designed for highly motivated students who are looking for an opportunity to pursue intensive study in personal areas of interest. The Honors Program 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 freshman year with a 3.5 cumulative (overall) GPA. Students with a 3.5 average in HOD courses are eligible to participate in topical honors seminars scheduled each semester. Honors students are expected to take one or two honors seminars and are encouraged to take at least one graduate course in their area of interest. Continuation in the Honors Program requires the maintenance of a cumulative GPA of 3.5 or better. Interested students should contact the HOD Program Director for more information.

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.

English 104W, 105W, 106W, 109W, 112W, 118W, 120W, 122, 123, 200, 201

Communication Studies (All regular* courses)

Humanities/Comparative Literature 105W, 106W, 107W, 108W

Theatre 100

HUMANITIES. 9 hours. Two of the fields listed below must be represented. Human and Organizational Development majors must take one philosophy course.

Survey Courses

Classics 130, 146, 150, 160, 203-206, 211, 220
 Computer Science 151
 Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 224
 Art and Art History (All regular* courses except studio courses)
 Film Studies (All regular* courses)
 Foreign Language (All regular* courses 101b or 102 or above)
 Chinese or Japanese 202-216

Literature

Chinese or Japanese 241 and above
 English 104W, 105W, 106W, 109W, 112W, 118W (if course is not already counted under Communications)
 English 208a or above
 French 220 and above
 German 221 and above (except 213, 214, 220)
 Greek 201 and above
 Humanities 105W, 106W, 107W, 108W; 140, 141, 150, 151, 156
 Latin 201 and above (except 225)
 Portuguese 205 and above (except 223)
 Russian 221 and above (except 257, 258)
 Spanish 203, 221, and above
 Theatre 100, 201, 202, 203, 204, 232, 271

Music (All Blair regular* courses, excluding studio and MUSO courses)

Philosophy (One course is required)

Religious Studies (All regular* courses)

Women's Studies 271

MATHEMATICS. 6 hours. One semester of statistics is required.

One of: Mathematics 127a, 127b, 133, 140, 150a, 150b, 155a, 155b, 165, 180; Psy 2102
 Statistics: Psychology 209, 2101; Economics 150; Math 127a, 127b

NATURAL SCIENCE. 7 hours. At least one laboratory science course is required. Any course or combination of the following, provided course content is not repeated. Check department listings for credit restrictions.

Astronomy 101, 102, 130, 175
 Biological Sciences 100, 105, 110a, 110b, 111a, 111b, 218, 219
 Chemistry 101a, 101b, 102a, 102b, 104a, 104b
 Geology 100, 101, 102, 103, 106, 108, 150, 225
 Neuroscience 201
 Nursing 150, 210a, 210b, 231a, 231b
 Physics 101, 105, 106, 110a, 111a, or 110b, 111b, 117a, 117b, 121a, 121b
 Psychology 201

SOCIAL SCIENCES. 9 hours required. Human and Organizational Development majors must take Economics 100 or HOD 2260, and Political Science 100 is recommended.

Anthropology (All regular* courses)

Economics 100, 101

History (All regular* courses except 131)

Music Literature 141, 160, 170, 171

Political Science 100, 101, 102

Psychology (All regular* Peabody and Arts and Science courses except 209, 222, 225, 231, 242; Psy 2101, 2102)
Sociology (All regular* courses)
Women's Studies 240, 243, 270

Liberal Core Electives. 3 hours required.

*Special topics courses are not ordinarily acceptable to meet Liberal Education Core requirements and require prior approval as substitute courses. Independent study courses are not acceptable to meet Liberal Education Core requirements.

Human and Organizational Development Seminars. 20–22 hours.

These seminars are listed in the Courses of Study section under Human and Organizational Development and will include the following topics:

- Communication and leadership skills
- Developing human and organizational talent
- Ethics for human development professionals
- Human service and private sector organizations
- Leadership and organizational effectiveness
- Life-span human development
- Organizational and human resource development
- Public policy analysis
- Senior project
- Small group behavior
- Systematic inquiry

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. (Students in the Community Leadership and Development track and the Health and Human Services track with a second major are required to take 9 track hours. Students in the International Leadership and Development, the Leadership and Organizational Effectiveness, and the Public Policy tracks with a second major are required to take 15 track hours.)

A block of courses within the student's area of concentration: (1) Community Leadership and Development, (2) Health and Human Services, (3) Health and Human Services, (4) Leadership and Organizational Effectiveness, and (5) Public Policy.

Electives. 25-39 hours.

The Minor in Human and Organizational Development

The Minor in Human and Organizational Development consists of 19 hours in the following courses:

REQUIRED COURSES. *10 hours*

- HOD 1000. Applied Human Development (3)
- HOD 1100. Intrapersonal Communications (3)
- HOD 1200. Understanding Organizations (3)
- HOD 1210. Perspectives of Organizational Fit (1)

ELECTIVE COURSE. *9 hours*

9 hours at the 2000-level with either

- (1) All nine hours in a given track
 - Community Leadership and Development track
 - Health and Human Services track
 - Leadership and Organizational Effectiveness track
 - International Leadership and Development track
 - Public Policy track

or

- (2) Two of the five introductory track courses:
 - HOD 2500. Introduction to Human Services
 - or* HOD 2525. Introduction to Health Services
 - HOD 2600. Community Development Theory
 - HOD 2640. Global Dimensions of Community Development
 - HOD 2700. Leadership Theory and Practice
 - HOD 2780. Policy Analysis Methods

and

One additional 3-hour HOD course



Major in Special Education

CHAIR Daniel J. Reschly

PROFESSORS Anne L. Corn, Douglas Fuchs, Lynn S. Fuchs, Robert Hodapp,
Carolyn Hughes, Ann P. Kaiser, Craig H. Kennedy, Daniel J. Reschly, Mark Wolery,
Paul J. Yoder

RESEARCH PROFESSOR Teris K. Schery

ASSOCIATE PROFESSOR Joseph J. Cunningham

ASSISTANT PROFESSORS Donald L. Compton, Joseph H. Wehby, Kathleen Lynne Lane

ASSISTANT CLINICAL PROFESSOR Sally M. Barton-Arwood

ASSISTANT PROFESSORS OF THE PRACTICE Kimberly J. Paulsen, Ruth A. Wolery

RESEARCH ASSISTANT PROFESSORS Lisa Sharon Cushing, Terry B. Hancock,

P. J. McWilliam

INSTRUCTOR Gail H. Zika

1 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 five specialty areas: mild and moderate disabilities (modified program), multiple and severe disabilities (comprehensive program), visual impairment, hearing impairment, or early childhood/special education. 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.

The Special Education Honors Program

The Special Education Honors Program offers students the opportunity to gain more intensive experience conducting scientific research with a faculty mentor than is usually possible within the major. Participation in this program affords students the opportunity to collaborate on cutting-edge

research in their major area, and to gain research skills and experiences that are of considerable value not only in preparation for graduate training, but also in a variety of work settings. Students apply to participate in this program in the spring of their sophomore year, and the program is open to all students taking special education as a first or second major who maintain at least a 3.0 overall GPA and a 3.5 GPA in their major. Participants in this program take special sections of research-oriented courses while working collaboratively with their research mentor for at least three of the four semesters of their junior and senior years. Participation in the program culminates in the completion of an Honors Thesis and a public presentation of the research conducted as a part of this thesis. The program is flexible enough to accommodate students who need to student teach during one semester of their senior year, and students who want to spend a semester abroad. Students who successfully complete the Honors Program and maintain the required GPAs graduate with the special designation of “Honors” in their special education major.

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), visual impairment (grades PreK–12), hearing impairment (grades PreK–12), and early childhood special education (grades PreK–1). Total hours will vary depending on the area of specialization.

Liberal Education Core Requirements. 60 hours.

LIBERAL EDUCATION CORE WRITING REQUIREMENT

The Peabody College writing requirement may be met by one of the following:

- Successful completion of one writing (“W”) intensive course from any Vanderbilt subject area

- An SAT II Writing test score at or above 560

Writing-intensive courses have a “W” after the course number and may fulfill other Liberal Education Core requirements as well as the writing requirement.

Students with an SAT II Writing test score below 560 will be required to enroll and successfully complete English 100W during the first academic year in attendance. Credit for English 100W will be given toward the Bachelor of Science degree as elective credit. English 100W will not satisfy the writing requirement nor the Communications Area of the Liberal Education Core.

LIBERAL EDUCATION CORE MATHEMATICS SAT II POLICY

Students with an SAT II Mathematics test score of 620 (Level I) or 570 (Level II) are exempt from three hours of the core math component of the Liberal Education Core Mathematics Area. Students must complete the statistics math requirement.

COMMUNICATIONS. *10 hours.* One English course (3 hours).

One of: English 104W, 105W, 106W, 109W, 112W, 118W, 120W, 122, 123, 200, 201

One course (3 hours) from:

Communication Studies 100, 101; or Theatre 100

Plus: EDUC 2040

Plus: SPED 2030. Introduction to Language and Communication

HUMANITIES. *9 hours.*

Astronomy 203

Chinese 202

Classical Studies 130, 146, 150, 160, 210, 211, 218, 220, 224

Comparative Literature 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 260, 278, 284, 285, 286, 287

English 104W, 105W, 106W, 109W, 112W, 115W, 118W, 120W, 208a and above (except 269, 289a and above)

Film Studies 133

French 101b and above (except 289 and above)

German 102 and above (except 289a and above)

Greek 202 and above (except 289 and above)

Hebrew 111a and above (except 289a and above)

History 180, 244

Humanities 105W, 106W, 107W, 108W, 140, 141, 150, 151, 156, 175, 202, 203, 215, 224, 238, 239, 241, 278, 284, 285, 286, 287

Italian 101b and above (except 289 and 294)

Japanese 202 and above (except 289a and 289b)

Latin 202 and above (except 289)

Philosophy 100 and above (except 289a, 289b, and 294)

Physics 238

Portuguese 200, 205, 223, 232, 285

Psychology 256

Religious Studies 100 and above (except 280 and above)

Russian 102 and above (except 171, 172, 289 and above)

Sociology 217, 279

Spanish 102 and above (except 280, 289 and above)

Theatre 100, 201, 202, 203, 204, 232, 271

Women's Studies 271

One Fine Arts course. 3 hours.

Anthropology 130, 245, 255, 256, 257

Art and Art History 102 and above (except 280a and above)

Classical Studies 203, 204, 205, 206, 217

Music MUS 105 and above (except MUS 299); MUSL 103 and above (except MUSL 289 and above); (MUSO 100 does not count)

MATHEMATICS. *6 hours.*

Statistics. 3 hours.

PSY 2101; Math 127a; 127b, 180

Mathematics

SAT II Math Test Score Level 1 of 620 and higher or Level II of 570 and higher
or

MATH 127a, 127b, 133, 140, 150a, 150b, 155a, 155b, 165, 180; Math 127a, 127b, or 180 may be used here if not used for statistics requirement.

NATURAL SCIENCE. *7 hours.*

One lab science. 4 hours.

Astronomy 102, 175

Biological Science 100, 110a and 111a, 110b and 111b, 218, 219

Chemistry 101a, 101b, 102a and 104a, 102b and 104b

Geology 101 and 111, 102, 103 and 113, 225

Physics 101, 105 and 106, 110a and 111a, 110b and 111b, 117a, 117b, 121a, 121b

One of the following courses. 3 hours.

Astronomy 130

Biological Science 105, 110a, 110b

Chemistry 102a, 102b

Geology 100, 101, 103, 106, 108, 150

Nursing 231a, 231b

Physics 110a, 110b

NOTE: Two lab science courses will meet the Natural Science requirement.

SOCIAL SCIENCES. 21 hours.

Cultural Studies. 3 hours.

African American Studies 101, 294a, 294b

Art and Art History 130, 200, 252, 253, 254

Anthropology 130, 210, 214, 237, 247

Comparative Literature, 237

East Asian Studies 240

English 263, 271

History 155, 157, 239, 247, 248, 249, 250, 253, 264, 278, 280

Humanities 237

Music Literature 160, 170, 171

Political Science 102, 214, 216, 217, 219

Religious Studies 112, 113, 114, 130, 132, 133, 230, 232

Sociology 255

United States History. 3 hours.

History 170, 171, 172, 173, 176, 177, 267, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280

REQUIRED COURSES. 15 hours.

Education 1020 (3 hours)

Psychology 1630, 2310 (6 hours)

Special Education 1010, 2020 (6 hours)

LIBERAL CORE ELECTIVES. 7 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

Specializations.

The following SPED courses are taken as part of the Liberal Education Core, but are also requirements in each area of specialization.

SPED 1010. Introduction to Exceptionality

SPED 2020. Family Intervention

SPED 2030. Introduction to Language and Communication

The following courses are required in each area of specialization.

- SPED 1000. Practicum: Observation
- SPED 2010. Introduction to Instructional Models
- SPED 2110. Managing Academic and Social Behavior
- SPED 2111. Practicum: Management
- 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

MODIFIED PROGRAM CORE.

- SPED 2800. Characteristics of Students with High-Incidence Disabilities
- SPED 2810. Assessment Strategies for Students with Disabilities
- SPED 2811. Practicum: Assessment Strategies
- SPED 2820. Teaching Math to Students with Disabilities
- SPED 2821. Practicum: Teaching Math to Students with Disabilities
- SPED 2830. Teaching Reading to Students with Disabilities
- SPED 2831. Practicum: Reading
- SPED Practicum

COMPREHENSIVE PROGRAM CORE.

- SPED 2050. Augmentative and Alternative Communication
- SPED 2300. Procedures for Students with Severe Disabilities
- SPED 2301. Practicum: Procedures for Students with Severe Disabilities
- SPED 2330. Procedures for Multiple Disabilities
- SPED 2331. Practicum: Multiple Disabilities
- SPED 2340. Procedures for Transition to Adult Life
- SPED 2341. Practicum: Transition to Adult Life
- SPED 2350. Advanced Procedures for Students with Severe Disabilities
- SPED 2820. Teaching Math to Students with Disabilities

VISUAL IMPAIRMENT PROGRAM CORE.

- SPED 2500. Sensory Perception, Anatomy, Physiology, and Hygiene of Eye
- 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 Visually Impaired
- SPED 2810. Assessment Strategies for Students with Disabilities
- SPED 2811. Practicum: Assessment Strategies
- SPED 2820. Teaching Math to Students with Disabilities

HEARING IMPAIRMENT PROGRAM CORE.

- SPED 2600. Audiology in Education
- SPED 2601. Laboratory: Audiology in Education
- SPED 2610. Speech Development and Improvement for Children with Hearing Impairment
- SPED 2620. Language and Literacy in the Deaf or Hard of Hearing Child
- SPED 2621. Practicum: Language and Speech Development of Children with Hearing Impairment
- SPED 2630. Educational Programming for Children with Hearing Impairment
- SPED 2631. Practicum: Educational Programming for Children with Hearing Impairment
- SPED 2640. Beginning Manual Communication
- SPED 2650. Advanced Manual Communication
- SPED 2820. Teaching Math to Students with Disabilities

EARLY CHILDHOOD PROGRAM CORE.

- SPED 2050. Augmentative and Alternative Communication
- SPED 2330. Procedures for Students With Multiple Disabilities
- SPED 2331. Practicum: Multiple Disabilities
- SPED 2400. Early Education for Children with Disabilities
- SPED 2401. Practicum: Early Education for Children with Disabilities
- SPED 2410. Early Intervention for Infants with Disabilities
- SPED 2420. Developmental Assessment Strategies
- SPED 2421. Practicum: Developmental Assessment Strategies
- SPED 2820. Teaching Math to Students with Disabilities

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 first three courses are required for all minors. Then students choose an additional cluster that matches their area of interest. Individual course clusters can be arranged with Special Education faculty to match student interest. The minor requires 17-18 hours.

REQUIRED:

- SPED 1010. Introduction to Exceptionality
- SPED 2110. Managing Academic and Social Behavior
- SPED 2111. Practicum: Managing Academic and Social Behavior

Option 1: Clinical and School Services Cluster

- SPED 2810. Assessment Strategies for Students with Disabilities
- SPED 2010. Introduction to Instructional Models
- SPED 2811. Practicum: Assessment
- SPED 2870. Accommodating Academic Diversity in the Classroom

This option provides students with an opportunity to develop familiarity and expertise in working with children who have learning disabilities, behavior disorders, or mild mental retardation.

Option 2: Community Involvement Cluster

- SPED 2340. Transition to Adult Life
- SPED 2341. Practicum: Transition to Adult Life
- SPED 2300. Procedures for Students with Severe Disabilities
- SPED 2301. Practicum: Procedures for Students with Severe Disabilities

This option provides students with an opportunity to develop familiarity and expertise in working with individuals who have multiple or severe disabilities. The focus is on basic communication, social, motor, academic, adaptive behavior, vocational, and community living skills.

Option 3: Early Childhood Cluster

- SPED 2400. Early Education for Children with Disabilities
- SPED 2401. Practicum: Early Education
- SPED 2420. Assessment Strategies for Young Children
- SPED 2020. Family Intervention

This option provides students with an opportunity to develop familiarity and expertise in working with infants, toddlers, young children, and their families in a variety of settings and roles. The children would have a wide range of developmental delays from at-risk for delays

to more severe delays in cognitive, communication, social, adaptive behavior, and/or motor skills.

Option 4: Hearing Impaired Cluster

SPED 2600. Audiology

SPED 2601. Audiology Lab

SPED 2610. Speech for the Hearing Impaired Child

SPED 2640. Manual Communications

This option provides students with an opportunity to develop familiarity and expertise in working with children and young adults who have a hearing disability which may range from a mild to a profound hearing loss.



Honors

1

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.

Academic Honors Designation

Honors, which are noted on diplomas and published in the *Commencement Program*, are earned as follows:

Summa cum laude. Students who earn a grade point average of 3.750 or better.

Magna cum laude. Students who earn a grade point average of 3.500 or better.

Cum laude. Students who earn a grade point average of 3.250 or better.

The Dean's List

The Dean's List provides a means of recognizing outstanding academic performance in a semester. Students are named to the Dean's List if they achieve a grade point average of at least 3.500 while enrolled for 12 or more graded hours with no temporary or missing grades.

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.

2004 Founder's Medalist Alexis Anne Nesbit
and Dean Camilla P. Benbow

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.

<i>Major</i>	<i>Degree</i>	<i>Department</i>
Child Studies	M.Ed.	Psychology and Human Development
Curriculum and Instructional Leadership	M.Ed.	Teaching and Learning
Early Childhood Education	M.Ed.	Teaching and Learning
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 Education	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
Human, Organizational, and Community Development	M.Ed.	Human and Organizational Development
Human Resource Development	M.Ed.	Leadership, Policy, and Organizations
International Education Management and Policy	M.Ed.	Leadership, Policy, and Organizations
Mathematics Education	M.Ed.	Teaching and Learning
Organizational Leadership	M.Ed.	Leadership, Policy, and Organizations
Reading Education	M.Ed.	Teaching and Learning
Science Education	M.Ed.	Teaching and Learning
School Administration	M.Ed.	Leadership, Policy, and Organizations
Secondary Education	M.Ed.	Teaching and Learning
Special Education	M.Ed.	Special Education
Technology and Education	M.Ed.	Teaching and Learning

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 to 18 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. With the exception of the Human Development Counseling program, 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:

- Students must 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 who have earned a cumulative grade point average of 3.25 or higher in their most recent 60 credit hours of undergraduate study at Vanderbilt are not required to present GRE or MAT scores as part of their application.
- Applicants who have earned a cumulative grade point average of 3.00 to 3.25 in their most recent 60 hours of undergraduate study at Vanderbilt are required to score a minimum of 1000 on the GRE (verbal + quantitative) or a minimum of 50 on the MAT.
- Courses may not be transferred from another university as a part of the master's degree.

Human Development Counseling

Under the combined five-year plan, undergraduates with Human and Organizational Development majors take 18 credit hours of professional HDC courses during the senior year as part of the 120 hours required for the B.S. degree in human and organizational development. A fifth year (including summers) follows, during which students complete the additional 30 professional hours necessary for the 48-hour master's degree in human development counseling.

In addition to the general requirements for admission to five-year programs, those pursuing the five-year HOD/HDC program are required to abide by the following guidelines:

- Applicants would begin taking the initial 18 hours of the master's degree in HDC during the senior year (see curriculum below for the sequence of coursework).
- Applicants can take no more than 18 hours of HDC professional courses for post-baccalaureate credit in the senior year.
- Applicants must have at least a B average in each course for the course to be counted toward the master's degree in HDC.
- Courses may not be transferred from another university as part of the 48-hour master's degree.

Suggested Curriculum

HOD SENIOR YEAR (FALL AND SPRING).* 18 hours.

- HDC 3310. Theories of Counseling [3]
- HDC 3470. Psychology of Careers [3]
- HDC 3660. Developmental Counseling Psychology [3]
- HDC 3680. Counseling Diverse Populations [3]
- HDC 3760. Group Dynamics in HDC [3]
- HDC 3850. Pre-practicum in Counseling [3]

FIFTH YEAR (INCLUDING SUMMERS). 30 hours.

- HDC 3480. Addictions and the Human Services Professional [3]
- HDC 3510. Appraisal and Assessment [3]
- HDC 3670. Advanced Developmental Theory and Practice [3]
- HDC 3750. Consultation in Human Service Settings [3]
- HDC 3840. Research in Counseling [3]
- HDC 3870. Practicum in Counseling [1–2]
- HDC 3890. Internship in Counseling [5–10]
- Professional Electives [9]

* Students wishing to take HDC professional course work prior to the senior year must petition to do so.

Human, Organizational, and Community Development

Through a combination of theory, research, and practice, the master's program in Human, Organizational, and Community Development [HOCD] prepares the student to provide leadership in community improvement activities in community agency administration, as a community development specialist, or as a program planning and evaluation specialist. The basic coursework includes community systems and development, budgeting and finance, learning systems, asset mapping, community leadership development, statistical analysis, program planning, and evaluation. Field placements in appropriate settings are an integral part of the training.

Organizational Leadership

The master's program in Organizational Leadership [OL] prepares leaders for private sector positions and leadership roles in non-profit and government agencies. Students in this program build knowledge and skills focused on understanding the social and political context of organizational decision making; use theories and techniques from the social sciences to analyze organizational problems; develop skills to facilitate development of learning organizations; develop skills to manage organizational change and development; and develop skills for conducting research or evaluation within organizations. Students also participate in at least one practicum where they apply what they are learning in an appropriate organizational setting.

Human Resource Development

The HRD program prepares professionals to design, implement, and evaluate learning programs within businesses and other organizations. Graduates are corporate trainers, directors of HRD, and organizational consultants. In addition to delivering effective instruction, HRD professionals also are prepared to design ways to improve the quality of work life, facilitate change, and develop programs to increase productivity and satisfaction for all organization employees.

Higher Education Administration.

HEA programs prepare professionals to work in a variety of college and university administrative and student affairs positions. Three 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.

Institutional Advancement

The Institutional Advancement specialization prepares students for careers in fund raising, public relations, and alumni relations. While the primary focus of this program is higher education, students seeking careers in nonprofit organizations or other settings which involve direct contact with the public will find the coursework useful.

Five-Year Master's Degree Program in Behavior Analysis

A program of studies designed to prepare an individual to take examinations for certification as a behavior analyst at both the state and national level. Graduates work in schools, clinics, hospitals, or as consultants for individuals with behavior problems. Focus is on behavior analysis, single-subject methodology, consultations, and working with families. Students follow the Liberal Arts Core for their major(s). Students interested in this degree should contact Joe Wehby or Craig Kennedy at 322-8150.

Courses of Study

1

Human and Organizational Development

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: HOD 1001. [3]

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. Corequisite: HOD 1000. [1]

1024. Interpersonal Communication. This course is designated for second semester freshmen. It provides skill development in interpersonal communication and group dynamics. Corequisite: HOD 1100. [1]

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: HOD 1024. [3]

1150. Freshman Seminar. [3]

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]

1210. Perspectives of Organizational Fit. Unlike the machine model of organizations that dominated early business models, we now recognize that organizations are open social systems or structures created to support the collaborative pursuit of specified goals. They are collectivities whose participants are pursuing multiple interests, both disparate and common, but who recognize the value of perpetuating the organization as an important resource. Key to the study of organizations is recognizing the importance of organizational fit to both the organization and the individual. Bolman and Deal's (2003) Human Resource Frame assumptions stress that organizations exist to serve people's needs, and people and organizations need each other. This course examines key issues: the critical process of blending the individual members into the organization's social system and aligning them in such a way that individual potential is maximized and their interests are served in the pursuit of the organizations goals. Over the course of the semester we will explore the strategic alignment process from both the organizational and individual levels, explore the concepts of personal mastery, and examine and apply key processes, tools, and techniques designed to facilitate organizational fit. [1]

1410. Developing Human and Organizational Talent II. Survey of basic skills of career development focusing on job search strategies, résumé development, and interviewing skills. Students will search for and select an internship to be completed in the semester following this course. [1]

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]

2000. Human and Organizational Development Practicum. An intensive practicum experience in a community setting. Three contact hours per week required for each credit hour. Students will participate in a weekly seminar. [1-3]

2100. 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. [3]

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 offered 2003/2004)

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]

2470. Introduction to Community Psychology. 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]

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]

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 is entailed in being a counselor. [3]

2510. Health Service Delivery to Diverse Populations. This course will focus 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 this relates to health status and health service needs. This course will provide students with a basic knowledge and understanding of diversity so that they may be more effective in serving the needs of all people. [3]

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]

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 discussed 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]

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]

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]

2545. Women in Sports: History, Issues, Controversies, and Contributions to Leadership. This course will provide the opportunity to study the history of women in sports and to explore the implications that women's sports participation has on the individual, on institutions, and on society. In addition, such issues as governance and policy in women's sports, gender, contributing factors to leadership qualities, physiological perspectives, psychological perspectives, sport economics, and sport in the global community will be addressed. [3]

2580. Health and Human Services Seminar. Exploration of selected topics related to the health and human services track of the Human and Organizations Development Program. May be repeated for credit with change of topic. [3]

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]

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]

2620. Action Research and Program Evaluation. This is a speciality 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]

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]

2640. 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]

2650. Reforming America's School. 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]

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]

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]

2690. Special Topics in Human and Organizational Development. Exploration of special issues on topics related to human development. May be repeated for credit with change of topic. [1–3]

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 and 1700. [3]

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]

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 and 1700. [3]

2730. Introduction to Human Resources 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: Either HOD 2700 or 2720. [3]

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 2700 and 2720. [3]

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 and 2720. [3]

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 2700 and 2720. [3]

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 2700 and 2720. [3]

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]

2775. 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]

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. Prerequisite: HOD 2700 and 2720. [3]

2890. 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]

2900. Human Development Internship. An intensive work experience that involves working four days per week for one semester. Students will work in internship settings four days per week. The internship includes completion of a specific project for the organization. Corequisite: HOD 2910, 2930. [3-6]

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, 2930. [3]

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 seven 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 Development Program internship. Prerequisite: HOD 1000, 1100, 1200, 1400, 1410, 1700. [3]

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. Corequisite: HOD 2900, 2910. [3]

2960. Senior Thesis. [3]

2980. Readings and Research for Undergraduates. Individual programs of reading or the conduct of research studies in human resources. Consent of faculty adviser required. May be repeated. [1-3]

Psychology and Human Development

1150. Freshman Seminar. [3]

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]

1300. Cognition and Instruction. The nature of human cognition, particularly the implications for the design and facilitation of the teaching and learning process. Major theories and research on thinking, learning, and cognitive development with illustrations of how they relate to teaching and the acquisition of expertise in content areas such as reading, mathematics, and science. Students will have an opportunity to explore innovative instructional technologies and the process of translating cognitive theory into instructional practice. [3]

1500. Cognitive Aspects of Human Development. Introduction to research and theory in cognitive development throughout the life span. Emphasis on early and middle childhood. Topics include development of language, memory, sensation and perception, problem solving, reading and writing, and logical-mathematical reasoning. Will consider applications of theory to developmental disorders and education. Prerequisite: PSY 1200 or 1630. [3]

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: one previous course in cognitive studies (i.e., PSY 1200, 1300, or 1500). [3]

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]

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]

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 1630 or 1200. [3]

2000. Psychology and Language. In this course, we will cover material from linguistics, philosophy, and psychology to examine how language works. We will focus on the commonalities underlying languages to understand the mechanisms and processes guiding the impressive language abilities of adult and child speakers. The first half of the course will be devoted to the phenomenon of language itself. We will discuss how we perceive, understand, and use language at the phonological, semantic, and syntactic levels. The second half of the course will be devoted to a more focused discussion of special topics including language and thought, first and second language acquisition, brain and language, and animal communication. [3]

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. Prerequisite: Junior or senior standing and either PSY 1200 or 1630. [3]

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]

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 2101. [3]

2230. Family, Career, and Gender. (Also listed as HOD 2230) 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]

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 1630. [3]

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 1630 or PSY 101 or PSY 1200. [3]

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; and school achievement and organization. [3]

2470. Introduction to Community Psychology. (Also listed as HOD 2470) Literature and research in community psychology. History of the specialty, theories of community, models of intervention, community research strategies, ethnopsychology, and community development. [3]

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 1630 or 1200.[3]

2520. Observational Research Methods. An introduction to the theoretical and methodical issues concerning observational/descriptive studies of behavior. Students conduct a research project using observational methods. Prerequisite: PSY 1630 or 1200. [3]

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 1630 or 1200. [3]

2560. Health Psychology. In this undergraduate course, we will explore the relationship between psychology and health. We will use a framework that incorporates biological, psychological, and social factors to elucidate how these aspects of the person and environment contribute to a person's health and how they may be harnessed in the attempt to improve health. We will cover several conditions that threaten health, such as smoking, drinking, cardiovascular disease, diabetes, and cancer, and see how psychologists are helping with the prevention and treatment of these conditions. Students will learn what they can do as future professionals and as individuals to improve the health of others and themselves. [3]

2610. Ethical and Moral Development. Examines research on the development of ethics and moral behavior in children and youth. Current theoretical approaches will be discussed as well as the role of the family, peers, church, and school. Prerequisite: PSY 1630 or PSY 101. [3]

2690. Special Topics in Psychology. Advanced exploration of a psychological orientation to current issues. May be repeated. [1–4]

2691. Developmental Neuroscience. (Also listed as A&S PSY 269a) An introduction to normal brain development with examples of abnormal development. Topics include cell division, migration, cell death, synapse formation, plasticity, and developmental disability syndromes. Prerequisite: PSY 233 for undergraduates; instructor's permission for graduate students. [3]

2692. Developmental Psychobiology. (Also listed as A&S PSY 269b) Description, causes, and consequences of disorders in neurobehavioral development. Basic concepts of psychology and neuroscience are used to explore the nature of developmental disabilities, their prevention, and management of disabling conditions. [3]

2700. Introduction to Clinical Psychology. This course will provide an overview of the science and practice of clinical psychology. Clinical research, assessment, psychotherapy, prevention, and selected issues will be examined. Students examine the techniques used by clinical psychologists to assess, treat, and prevent psychopathology, and research investigating the efficacy of these techniques. Students will examine the science of clinical psychology by reviewing research from scientific journals on the effects of a specific type of psychotherapy in the treatment of a specific psychological disorder. Previous courses in abnormal psychology and psychological research methods/statistics are recommended. [3]

2810. Practicum in Child Development. The course offers students opportunities to observe and interact with children in community settings (e.g., preschool and day care programs). Students engage in systematic observation of child behavior, regular discussions about observations with the course instructor, and weekly course meetings focused on relating observations to theoretical and empirical readings. Prerequisite: PSY 1630 and at least two other courses in Child Development; permission of instructor. [2-3]

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]

2890. Ethics for Human Development Professionals. (Also listed as HOD 2890) Normative evaluation of ethical issues in serving human needs. 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. [3]

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 faculty sponsor and the director of undergraduate studies is required. May be repeated for credit. [1-3]

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]

2990. Honors Research.

Special Education

1000. Practicum: Observation. Field experience with discussion of a variety of special education programs and teaching strategies. Classroom observations which focus on a wide range of disabilities and service delivery models. Required for special education majors. [1]

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]

2010. Introduction to Instructional Models. An overview of instructional models that can be used with difficult-to-teach and disabled students. Emphasis is placed on instructional models that have empirical support for their effectiveness, facilitate continuous monitoring of student progress, and are amenable to the use of technology. Prerequisite: SPED 1010. [3]

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]

2030. Introduction to Language and Communication. (Also listed as ENED 2030) 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]

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]

2060. Cultural Diversity in American Education. 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] Fall.

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]

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]

2300. Introduction to Students with Severe Disabilities. Provides information on the nature and needs of individuals with severe/profound 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. [3]

2301. Practicum: Procedures for Students with Severe 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]

2330. Procedures for Students with Multiple Disabilities. Overview of the causes, treatment, education, and management of individuals with multiple disabilities; including neurological impairments resulting in physical disabilities, sensory impairments, and the

combination of these. Emphasis is placed on environmental adaptations and direct training needed to maximize independence as determined through systematic ecological inventories for individual students. Information is provided on physical and medical management of these students in educational settings. Corequisite: SPED 2331. [3]

2331. Practicum: 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]

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]

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]

2350. Advanced Procedures for Students with Severe Disabilities. 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]

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]

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]

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]

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].

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. Corequisite: SPED 2421. [3]

2421. Practicum: Assessment Procedures for Young Children. Field-based application of correlated course content of assessment strategies. Experience in conducting screening and comprehensive developmental assessments in early intervention, preschool, and/or early childhood education settings. Not currently offered. [1]

2500. Sensory Perception, Anatomy, Physiology, and Hygiene of Eye. Medical lectures and laboratory demonstrations by an ophthalmologist, with educational implications presented by an educator. Demonstrations and practice in vision screening. Guided observations in clinics and educational settings. Visual perception and perceptual development. [3]

2510. Educational Procedures for Students with Visual Impairment. Introduction to the literature, history, principles, programs, practices, and problems in the field. Administration, curricular, and methodological adaptations for various educational programs. The education of individuals with visual impairment and other accompanying disabilities. [3]

2530. Braille Reading and Writing. Basic communication skills for individuals with visual impairment. Basic mastery of braille for teaching. [2]

2540. Communication Skills for Students with Visual Impairment. Emphasis on research on methods of teaching communication skills and communication technology. Preparation of materials for the visually impaired. Prerequisite: working knowledge of braille. Consent of instructor required. [3]

2550. Orientation and Mobility for Teachers of the Visually Impaired. Lectures, discussions, and simulated activities in teaching orientation, mobility concepts, and skills to visually impaired individuals. Offered by a mobility specialist. [3]

2600. Audiology in Education. Introduction to the current issues and trends concerning the role of the audiologist in the public school setting. Review of the anatomy and physiology of the ear and common pathologies. Emphasis on early identification and intervention, inservice education, amplification, and the roles of federal, state, and local agencies in providing services to the learning-disabled, hearing-impaired students. [3]

2601. Laboratory: Audiology in Education. Demonstration and hands-on experience with personal and classroom amplification systems. Operation and troubleshooting of amplification systems commonly used in a classroom setting. Specifically, hearing aids, FM systems, assistive listening devices, vibrotactile devices, and cochlear implant will be demonstrated. Co- or prerequisite: 2600. [1]

2610. Speech Development and Improvement for the Deaf or Hard of Hearing. Anatomy, physiology, and acoustic features of speech, normal development of speech sound production, phonological processes, and system of orthography of speech sounds. Acquisition of basic speech teaching skills for development of effective oral communication in children who are deaf or hard of hearing (Ling's Seven-Stage Model, speech reading, and auditory enhancement techniques). [3]

2620. Language and Literacy for the Deaf or Hard of Hearing. Maximizing the language and literacy development of the child with mild to profound hearing loss. Language, reading, and writing assessment and intervention methods. Co- or prerequisite: 2030. [3]

2621. Practicum: Language and Literacy for the Deaf or Hard of Hearing. Assessment, planning, and implementing procedures for speech and language acquisition for children with hearing impairment. Application of theoretical concepts to classroom strategies. [1]

2630. Educational Programming for the Deaf or Hard of Hearing. Instructional methods and strategies for adapting classroom learning environments for the deaf or hard of hearing Behavior management, auditory management, curriculum assessment, and lesson planning. [3]

2631. Practicum: Educational Programming for the Deaf or Hard of Hearing. Application of theoretical information on classroom management, planning, and instruction, including academic curricula, amplification use, environmental assessment, and communication facilitation within a classroom setting. [1]

2640. Manual Communication (Beginning). Develops minimum competence in manual communication modes, both finger spelling and signing. Preservice experience for majors in special education who intend to work with the deaf or hard of hearing. Laboratory experience included. [3]

2650. Advanced Manual Communication. Second course in manual communication which includes sign vocabulary, grammatical structures, and idioms of American Sign Language. A comparative study of the use of signs in English order is included. Provides opportunities to become fluent signer of both English and American Sign Language. Prerequisite: SPED 2640. [3]

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. [3]

2800. Characteristics of Students with High-Incidence Disabilities. Focus on issues related to high-incidence disabilities: mild mental retardation, learning disabilities, ADHD, and behavioral disorders. A consideration of the 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]

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]

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]

2820. Instructional Procedures Mild/Moderate Disabilities. Emphasis on assessment, teaching, monitoring, and evaluation of individual educational programs within group instructional settings. Focuses on explicit teaching procedures, direct instruction, and instructional design principles that apply to a range of academic domains. Prerequisite: SPED 1010, 2010, 2110, 2810, 2820. Corequisite: SPED 2831. [3]

2821. Practicum: Instructional Procedures. 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 2830. [1]

2830. Advanced Instructional Procedures Mild/Moderate 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 2821. [3]

2831. Practicum: Advanced Instructional Procedures. 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 2820. [1]

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]

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. [5]

2900. Professional Seminar. Students complete assignments and structured activities that demonstrate their ability to apply theories and skills acquired during the core courses of the exceptional learning major. Emphasis is placed on understanding situations and solving problems that naturally occur during the student teaching experience. Students assemble a portfolio that demonstrates their professional competence in their area of specialization. Must be taken during the student teaching semester. Corequisite: SPED 2901, 2911. [3]

2901. Student Teaching in Special Education and Education. (Also listed as EDUC2704) 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. [9–10] (*Pass/Fail* grade)

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. [9–10] (*Pass/Fail* grade)

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

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]

2040. Introduction to Classroom Technologies. An introduction to various technologies used in classrooms with emphasis on microcomputer-based systems. Meets licensure requirements for preservice teachers. [1]

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, listening, and alternate

communications systems such as art, drama, and dramatic play. 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. [3]

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]

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]

2120. Parents and Their Developing Children. Examines the needs and characteristics of young children, birth through age eight, and the needs of parents and ways that parents can address their children's needs. Emphasis on parental involvement and strategies for working with parents in educational settings. [3]

2130. Curriculum Programming: Birth–Age 3. Focus on programs for and the teaching of infants and toddlers. Students will learn how to support the physical, social, emotional, language, and cognitive development of infants and toddlers in out of home settings and to understand individual differences in development and to support those differences through appropriate planning. A 20-hour practicum enables students to interact with very young children in a group environment. [3]

2140. Curriculum Programming: Ages 3–Kindergarten. Students become familiar with a variety of program models for young children and engage in curriculum development and instructional planning for young children with a variety of developmental needs. Focus is on preschool education and transition to formal school schooling. A 20-hour practicum enables students to interact with very preschool children in a group environment. [3]

2150. Mathematics, Science, and Social Studies Instruction in Early Grades. This course is designed to prepare prospective early childhood teachers to provide instruction in mathematics, science, and social studies. The course builds on the core content courses in mathematics and science in the early childhood program as well as the curriculum courses for ages 0-3 and age 3-kindergarten. Corequisite: EDUC 2151 [5]

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 [1]

2170. Teaching Diverse Learners in the Early Childhood Classroom. This course is designed to prepare prospective early childhood teachers to provide instruction that addresses the needs of diverse learners, particularly those in preschool through second grade. The course builds on EDUC 2130, EDUC 2140, and EDUC 2150 and is intended to provide a more in-depth study of appropriate instruction for individual students' particular needs than do those courses. [3]

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]

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]

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]

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]

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]

2250. Practicum in Elementary Sciences. 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]

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]

2290. Student Teaching Seminar: Elementary. Seminar to accompany EDUC 2701. [3]

2291. Student Teaching Seminar: Early Childhood. Seminar to accompany EDUC 2702. [3]

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

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]

2320. Teaching for Understanding and Academic Literacy. Designed to assist secondary content teachers in developing multiple teaching strategies, including use of technology, to enhance students' learning opportunities in diverse classrooms. Includes an emphasis on all teachers as teachers of reading and writing. Pre- or corequisite: EDUC 2040 [2]

2340. Practicum in Secondary Education I. Field experience in middle and secondary school settings. Designed for secondary education majors in their sophomore year. [1]

2350. Practicum in Secondary Education II. Field experience in middle and secondary school settings. Designed for secondary education majors in their junior year. [1]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. Corequisite: secondary methods course. [1]

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]

2450. Reading in Secondary Schools. (Also listed as ENED 2450) Survey of diagnostic instruments, reading skills, materials, and methods of teaching reading and study skills in content areas. [3-4]

2600. Curriculum Foundations and Design. An introduction to theoretical and practical dimensions of curriculum thought and development. Exploration and critical analysis of some of the major ways in which educational programs have been conceptualized, with special attention to basic assumptions about the purposes of education and the nature of knowledge and learning; students will trace the evolution and echoes of these conceptions of the curriculum within the context of American education in the twentieth century. [3]

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]

2701. Student Teaching in the Elementary School. Observation and teaching experience in elementary schools. Undergraduate credit only. Prerequisite: admission to student teaching. [8]

2702. Student Teaching in Early Childhood. Observation and teaching experience for students seeking PreK-3 licensure. Undergraduate credit only. Prerequisite: admission to student teaching. [4-9]

2703. Student Teaching in the Secondary School. Observation and teaching experience in secondary schools. Undergraduate credit only. Prerequisite: admission to student teaching. [4-9]

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]

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]

2960. Individual Study in Education. Semi-independent study on selected topics in education. Consent of instructor required. May be repeated. [1-3]

English Education

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 ten, 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]

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]

2280. Language Study in the Elementary and Secondary Classroom. Investigates various methods of approaching grammar, usage, semantics, and bi-dialectism in the English classroom. [3]

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. [1]

2370. Teaching English in the Secondary School. Principles of teaching applied to language and literature in secondary schools. Required for secondary school licensure in English. Prerequisite: EDUC 2310 or consent of instructor. Corequisite: ENED 2360. [3]

2400. Seminar in English Education. Explores methods of teaching the English language arts in secondary schools with an emphasis on student assessment, reflective practice, and teaching the English language arts to diverse classroom population. [3]

2450. Reading in Secondary Schools. (Also listed as EDUC 2450) Survey of diagnostic instruments, reading skills, materials, and methods of teaching reading and study skills in content areas. [3–4]

2690. Special Topics in English Education. Exploration of special topics related to English education. May be repeated with change of topics. [3]

2920. Literature for Adolescents. Examines a wide range of literary works appropriate to readers of middle school and high school age. Materials for readers of varying abilities. [3]

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

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. [1]

2370. Teaching Foreign Language in Secondary Schools. Fundamentals of language learning and techniques of teaching foreign language in the secondary school. Required for secondary school licensure in a foreign language. Prerequisite: EDUC 2310 or consent of instructor. Corequisite: FLED 2360. [3]

2690. Special Topics in Foreign Language Education. Exploration of special issues or topics related to foreign language education. May be repeated for credit. [1–3]

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

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]

2250. Introduction to Arts Education. Acquaints the student with the philosophical and pedagogical base with which to develop competence in teaching the arts. [2]

2690. Special Topics in Humanities Education. Explores special topics related to humanities education. May be repeated. [1–3]

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

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]

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]

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 credit of EDUC 2250. Prerequisite: MTED 2200. [2]

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. [1]

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]

2690. Special Topics in Mathematics Education. Exploration of special topics related to mathematics education. May be repeated. [1-3]

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]

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

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 of view of science as an integrated discipline. [3]

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. Corequisite: MTED 2250 and EDUC 2250. [2]

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. [1]

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]

2380. Laboratory in Secondary Science Education. Laboratory Experience in secondary science, microteaching, and examination of secondary science materials. Corequisite: 2370 or 3370. [1]

2690. Special Topics in Science Education. Exploration of a special topic related to science education. May be repeated. [1–3]

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

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]

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]

2292. Student Teaching Seminar: Secondary. Seminar to accompany EDUC 2703. [3]

2360. Practicum in Secondary Education III. Observation, participation, and teaching in middle school and secondary school settings. [1]

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]

2690. Special Topics in Social Studies Education. Exploration of special topics related to social studies education. May be repeated. [1–3]

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]

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 MITCHELL A. SELIGSON, Centennial Professor of Political Science
 HELMUT W. SMITH, Martha Rivers Ingram Professor of History
 JOHN J. STUHR, W. Alton Jones Professor of Philosophy
 CECELIA TICHI, William R. Kenan Jr. Professor of English
 DANIEL H. USNER, JR., Holland M. McTyeire Professor of History
 BARBARA WEINLICH, Mellon Assistant Professor of Classical Studies
 JOHN P. WIKSWO, JR., Gordon A. Cain University Professor of Physics (A&S), Biomedical Engineering (Engineering), and Molecular Physiology and Biophysics (Medicine)

Faculty Council

Kassian A. Kovalcheck, Chair. William W. Damon, Secretary. *Ex Officio*: Dean of the College.

DIVISIONAL MEMBERS.

Terms expiring 2005: Emmanuele DiBenedetto, Robert Driskill, José Medina

Terms expiring 2006: William W. Damon, John Sloop, Joel Tellinghuisen

AT-LARGE MEMBERS.

Terms expiring 2005: Kassian Kovalcheck, Virginia Scott, Meike Werner

Terms expiring 2006: Karen Campbell, Malcolm Getz, Holly Tucker

COMMITTEE ON ACADEMIC STANDARDS AND PROCEDURES. George Becker (Sociology), Chair. Richard McCarty (Dean of the College), *ex officio*. Kate Daniels (Associate Dean), *ex officio*. Emmanuelle DiBenedetto (Mathematics), Calvin F. Miller (Earth and Environmental Sciences), Sohee Park (Psychology), Peter Rousseau (Economics), Patricia A. Ward (French and Italian).

ADMINISTRATIVE COMMITTEE. M. Francille Bergquist (Associate Dean), Chair. Richard J. Larsen (Associate Dean), *ex officio*. Richard McCarty (Dean of the College), *ex officio*. William W. Damon (Economics), Dennis C. Dickerson (History), Jon W. Hallquist (Communication Studies and Theatre), Mark Jarman (English), Molly F. Miller (Earth and Environmental Sciences).

COMMITTEE ON ADMISSIONS. Francis W. Wcislo (History), Chair. Kate Daniels (Associate Dean), *ex officio*. Russell M. McIntire (Associate Dean), *ex officio*. George H. Sweeney (Associate Dean), *ex officio*. Richard McCarty (Dean of the College), *ex officio*. William M. Shain (Dean of Undergraduate Admissions), *ex officio*. David D. Mohning (Director of Financial Aid), *ex officio*. Richard J. Blackett (History), William W. Damon (Economics), Tony L. Earley (English), Holly McCammon (Sociology) Julia A. Velkovska (Physics and Astronomy).

COLLEGE PROGRAM COMMITTEE. John Sloop (Communication Studies and Theatre), Chair. Yollette T. Jones (Associate Dean), *ex officio*. Isabelle Gauthier (Psychology), Calvin F. Miller (Earth and Environmental Sciences).

Subcommittee on History and Culture. David Lee Carlton (History), Chair. Bridgett Orr (English), F. Carter Philips (Classical Studies).

Subcommittee on Humanities. Vereen M. Bell (English), Chair. David Lowe (Germanic and Slavic Languages), Marilyn Murphy (Art and Art History).

Subcommittee on Natural Science. Volker E. Oberacker (Physics and Astronomy), Chair. John C. Ayers (Earth and Environmental Sciences), Charles M. Lukehart (Chemistry), Kaye Savage (Earth and Environmental Sciences).

Subcommittee on Social Science. Andrew J. Tomarken (Psychology), Chair. Holly McCammon (Sociology).

COMMITTEE ON WRITING. Mark A. Wollaeger (English), Chair. Kate Daniels (Associate Dean), *ex officio*. Jo-Ann Bachorowski (Psychology), Tracy Miller (French and Italian), Jeffrey S. Tlumak (Philosophy).

CURRICULUM COMMITTEE. Russell M. McIntire (Associate Dean), Chair. Kate Daniels, (Associate Dean), Co-Chair. Karen Dolan (Registrar of the Graduate School), *ex officio*. Robert Savage (Registrar of the College of Arts and Science), *ex officio*. Malcolm Getz (Economics), Timothy P. Hanusa (Chemistry), Kassian A. Kovalcheck (Communication Studies and Theatre), Leah Marcus (English).

COMMITTEE ON EDUCATIONAL PROGRAMS. Terryl W. Hallquist (Communication Studies and Theatre), Chair. Russell M. McIntire (Associate Dean), *ex officio*. Karen E. Campbell (Sociology), Clint E. Carter (Biological Sciences), Konstantin V. Kustanovich (Germanic and Slavic).

COMMITTEE ON THE HONORS PROGRAM. Russell M. McIntire (Associate Dean), Chair. José Medina, (Philosophy), Molly F. Miller (Earth and Environmental Sciences), Thomas A. Schwartz (History).

COMMITTEE ON INDIVIDUAL PROGRAMS. M. Fräncille Bergquist (Associate Dean), Chair. Richard J. Larsen (Associate Dean), *ex officio*. Andrea Maneschi (Economics), David E. McCauley (Biological Sciences), Ljubica D. Popovich (Art and Art History).

STUDENT-FACULTY RELATIONS COMMITTEE. Marshall C. Eakin (History), Chair. M. Fräncille Bergquist (Associate Dean), *ex officio*. James Lang (Sociology), Diane Perpich (Philosophy), Elena Olazagasti-Segovia (Spanish and Portuguese), Susan F. Wiltshire (Classical Studies). Students to be announced.

Faculty

- D. KILPATRICK ABBOT, Assistant Professor of Biological Sciences
B.Sc. (Georgia 1989); M.Sc. (Simon Fraser 1994); Ph.D. (Arizona 2002) [2003]
- BROOKE ANN ACKERLY, Assistant Professor of Political Science
B.A. (Williams 1988); M.A., Ph.D. (Stanford 1993, 1997) [2001]
- CHRISTIAN ROBERT AHLIN, Assistant Professor of Economics
B.S. (Duke 1995); M.A., Ph.D. (Chicago 1997, 2001) [2001]
- JOHN F. AHNER, Professor of Mathematics
B.A., Ph.D. (Delaware 1967, 1972) [1974]

- WILLIAM M. AKERS, Senior Lecturer in Communication Studies
B.S. (Vanderbilt 1978); M.F.A. (Southern California 1983) [1995]
- LEONARD P. ALBERSTADT, Professor of Geology, Emeritus
B.S., M.S. (Tulane 1959, 1962); Ph.D. (Oklahoma 1967) [1967]
- ROYAL G. ALBRIDGE, Professor of Physics
B.S. (Ohio State 1955); Ph.D. (California, Berkeley 1960) [1961]
- AKRAM ALDROUBI, Professor of Mathematics
M.S. (Swiss Federal Institute of Technology 1982); Ph.D. (Carnegie-Mellon 1987) [1997]
- FRANCES ALPREN, Senior Lecturer in Spanish
B.A., M.A. (Louisiana State 1983) [2002]
- KATHRYN H. ANDERSON, Associate Professor of Economics
B.A. (Kentucky 1972); M.Econ., Ph.D. (North Carolina State 1974, 1978) [1980]
- VICTOR ANDERSON, Associate Professor of Christian Ethics; Associate Professor of African American Studies; Associate Professor of Religious Studies
A.B. (Trinity Christian 1982); M.Div., Th.M. (Calvin Theological Seminary 1986, 1990); M.A., Ph.D. (Princeton 1991, 1992) [1992]
- J. RICHARD ANDREWS, Professor of Spanish and Portuguese, Emeritus
B.A. (Rollins 1949); M.A., Ph.D. (Princeton 1951, 1953) [1966]
- EUGENE R. ANTHONY III (Lieutenant, U.S. Navy), Naval Instructor, Naval Officer Training Corps
B.A. (Rhodes 1994); M.A. (Arkansas State 1997) [2004]
- BRUCE HANS APPEL, Assistant Professor of Biological Sciences; Investigator, John F. Kennedy Center for Research on Human Development
B.S. (McPherson 1983); Ph.D. (Utah 1993) [1998]
- RICHARD F. ARENSTORF, Professor of Mathematics, Emeritus
B.S., M.S. (Georg-August-Universität Göttingen 1952, 1954); Ph.D. (Mainz 1956) [1969]
- RICHARD N. ARMSTRONG, Professor of Biochemistry; Professor of Chemistry
B.S. (Western Illinois 1970); Ph.D. (Marquette 1975) [1995]
- MICHAEL ARMSTRONG-JAMES, Visiting Professor of Psychology
B.Sc., Ph.D. (Bristol [England] 1960, 1964) [2000]
- DANIEL H. ASHMEAD, Associate Professor of Hearing and Speech Sciences; Associate Professor of Psychology, College of Arts and Science; Investigator, John F. Kennedy Center for Research on Human Development
Sc.B. (Brown 1976); Ph.D. (Minnesota 1983) [1984]
- JEREMY ATACK, Professor of Economics; Professor of History
B.A. (Cambridge 1971); Ph.D. (Indiana 1976) [1993]
- PAMELA M. AUBLE, Adjunct Assistant Professor of Psychology, College of Arts and Science
B.A. (Vanderbilt 1977); M.A. (Toronto 1978); Ph.D. (Vanderbilt 1984) [1986]
- JAMES E. AUER, Director, Center for U.S.–Japan Studies and Cooperation, Institute for Public Policy Studies; Lecturer in East Asian Studies; Lecturer in History
B.A. (Marquette 1963); A.M., M.A.L.D., Ph.D. (Tufts 1969, 1970, 1972) [1988]
- MICHAEL L. AURBACH, Professor of Art
B.A., B.S.J., M.A., B.F.A. (Kansas 1974, 1976, 1979, 1981); M.F.A. (Southern Methodist 1983) [1986]
- JOHN C. AYERS, Associate Professor of Earth and Environmental Sciences
B.S. (SUNY, College at Fredonia 1985); M.S. (Pennsylvania State 1988); Ph.D. (Rensselaer Polytechnic Institute 1991) [1991]
- BRIAN O. BACHMANN, Assistant Professor of Chemistry
B.S. (Virginia Polytechnic Institute 1992); M.S. (Southern Methodist 1994); M.A., Ph.D. (Johns Hopkins 1997, 2000) [2003]
- JO-ANNE BACHOROWSKI, Associate Professor of Psychology, College of Arts and Science; Member, John F. Kennedy Center for Research on Human Development
A.B. (Holy Cross 1980); M.S., Ph.D. (Wisconsin 1986, 1991) [1995]

- LEWIS V. BALDWIN, Professor of Religious Studies
B.A. (Talladega 1971); M.A., M.Div. (Rochester 1973, 1975); Ph.D. (Northwestern 1980) [1984]
- ROBERT A. BALDWIN, Professor of Theatre, Emeritus; Professor of Fine Arts, Emeritus
A.B. (Oberlin 1952); M.F.A. (Yale 1955) [1957]
- JOHN PAUL BARACH, Professor of Physics, Emeritus
A.B. (Princeton 1957); Ph.D. (Maryland 1961) [1961]
- ROBERT J. BARRETT, Associate Professor of Psychology, College of Arts and Science;
Associate Professor of Pharmacology
B.A. (Lycoming 1963); M.A., Ph.D. (Southern Illinois 1966, 1967) [1970]
- TRACY BARRETT, Senior Lecturer in Italian
A.B. (Brown 1976); M.A., Ph.D. (California, Berkeley 1979, 1988) [1984]
- ROBERT F. BARSKY, Professor of French and Comparative Literature
B.A. (Brandeis 1984); M.A., Ph.D. (McGill 1987, 1992) [2003]
- GREGORY F. BARZ, Assistant Professor of Musicology (Ethnomusicology); Assistant
Professor of Anthropology
B.A. (North Carolina School of the Arts 1982); M.A. (Chicago 1992); Ph.D. (Brown 1997) [1998]
- STEVEN BASKAUF, Senior Lecturer in Biological Sciences
B.A. (Bluffton 1982); Ph.D. (Vanderbilt 1999) [1999]
- FRANZ JOSEF BAUDENBACHER, Assistant Professor of Biomedical Engineering;
Assistant Professor of Physics
B.Sc. (Tübingen [Germany] 1985); Ph.D. (Technical University of Munich 1994) [1997]
- GEORGE BECKER, Associate Professor of Sociology
B.A. (SUNY, College at New Paltz 1964); M.A. (Columbia 1968); M.S., Ph.D. (SUNY, Stony Brook 1972, 1976) [1977]
- VEREEN M. BELL, Professor of English
B.A. (Davidson 1955); Ph.D. (Duke 1959) [1961]
- M. FRÄNCILLE BERGQUIST, Associate Dean of the College of Arts and Science;
Assistant Professor of Spanish
B.A., M.A., Ph.D. (Texas Tech 1968, 1970, 1977) [1977]
- SUSAN BERK-SELIGSON, Associate Professor of Latin American Studies and Spanish
B.A. (City University of New York 1967); M.A. (Pittsburgh 1971); Ph.D. (Arizona 1978) [2004]
- MICHAEL D. BESS, Associate Professor of History
B.A. (Reed 1979); M.A., Ph.D. (California, Berkeley 1983, 1989) [1989]
- JOHN L. BINGHAM, Professor of Spanish, Emeritus
B.A., M.A. (Vanderbilt 1941, 1947) [1950]
- ROBERT H. BIRKBY, Professor of Political Science, Emeritus
B.S., M.A. (Colorado 1952, 1960); M.A., Ph.D. (Princeton 1962, 1963) [1963]
- DIETMAR BISCH, Professor of Mathematics
Hauptdiplom (Universität Karlsruhe [Germany] 1987); Ph.D. (California, Los Angeles 1991) [2002]
- RICHARD BLACKETT, Andrew Jackson Professor of American History; Professor of History
B.A. (Keele [England] 1969); M.A. (Manchester [England] 1973) [2002]
- RANDOLPH BLAKE, Centennial Professor of Psychology and Chair of the Department,
College of Arts and Science; Investigator, John F. Kennedy Center for Research on
Human Development
B.A. (Texas 1967); M.A., Ph.D. (Vanderbilt 1969, 1972) [1988]
- MARK J. BLITON, Assistant Professor of Medicine; Assistant Professor of Philosophy;
Assistant Professor of Obstetrics and Gynecology; Chief, Clinical Ethics Consultation
Service, VUMC
B.A. (Allegheny 1984); Ph.D. (Vanderbilt 1993) [1996]

- ELINOR O'BRIEN BÖER, Senior Lecturer in Business Administration (Died 5 February 2004)
B.S., M.S. (Louisiana State 1962, 1964) [1980]
- BURTON J. BOGITSH, Professor of Biology, Emeritus
A.B. (New York 1949); M.A. (Baylor 1954); Ph.D. (Virginia 1957) [1964]
- ERIC W. BOND, Joe L. Roby Professor of Economics; Professor of Economics
B.S. (Lehigh 1974); M.A., Ph.D. (Rochester 1977, 1979) [2003]
- HOWARD L. BOORMAN, Professor of History, Emeritus
B.A. (Wisconsin 1941) [1967]
- WILLIAM JAMES BOOTH, Professor of Political Science; Professor of Philosophy
B.A., M.A. (McGill 1975, 1978); Ph.D. (Harvard 1982) [1996]
- JASON BORGE, Assistant Professor of Spanish
B.A. (Pomona 1987); M.A. (Columbia 1991); M.A. (California, Santa Barbara 1997);
Ph.D. (California, Berkeley 2002) [2002]
- DARRYL J. BORNHOP, Professor of Chemistry
B.S., M.A. (Missouri 1980, 1982); Ph.D. (Wyoming 1987) [2003]
- TATIANA BOTERO, Senior Lecturer in Spanish
B.A., M.A. (West Virginia 1996, 1997) [2001]
- BARBARA C. BOWEN, Professor of French, Emerita
B.A. (Oxford 1958); Doctorat de l'Université (Paris 1962); M.A. (Oxford 1962) [1987]
- ELIZABETH BRONWYN BOYD, Senior Lecturer in American and Southern Studies
B.A. (Trinity 1982); M.A. (Mississippi 1989); Ph.D. (Texas 2000) [2000]
- LEONARD ALAN BRADSHAW, Research Assistant Professor of Physics; Research Assistant
Professor of Surgery
B.S. (Abilene Christian 1990); M.S., Ph.D. (Vanderbilt 1992, 1995) [2003]
- CHARLES A. BRAU, Professor of Physics
B.S. (Cornell 1961); A.M., Ph.D. (Harvard 1962, 1965) [1988]
- FLORENCIA R. BRAY, Lecturer in Spanish
B.S. (Arkansas, Little Rock 1997); M.A. (Arkansas, Fayetteville 2000) [2002]
- A. BERTRAND BRILL, Research Professor of Radiology and Radiological Sciences; Adjunct
Professor of Biomedical Engineering; Research Professor of Physics
M.D. (Utah 1956); Ph.D. (California 1961) [1997]
- KENDAL SCOT BROADIE, Professor of Biological Sciences; Professor of Pharmacology;
Investigator, John F. Kennedy Center for Research on Human Development
B.S. (Oregon 1989); Ph.D. (Cambridge [England] 1994) [2002]
- OLGA BROWN, Lecturer in Comparative Literature
B.A. (Illinois Wesleyan 1992); M.A., Ph.D. (Vanderbilt 1999, 2001) [2001]
- TONY N. BROWN, Assistant Professor of Sociology; Fellow, Institute of Public Policy Studies
B.S. (Maryland, Eastern Shore 1991); M.A., Ph.D. (Michigan 1993, 1998) [2001]
- THOMAS B. BRUMBAUGH, Professor of Fine Arts, Emeritus
B.S. (Indiana University of Pennsylvania 1943); M.A. (Iowa 1947); Ph.D. (Ohio State 1955)
[1964]
- BILLY F. BRYANT, Professor of Mathematics, Emeritus
B.S. (South Carolina 1945); M.A. (Peabody 1948); Ph.D. (Vanderbilt 1954) [1948]
- STEPHEN GARY BUCKLES, Senior Lecturer in Economics
B.A. (Grinnell 1965); Ph.D. (Vanderbilt 1975) [1994]
- THOMAS G. BURISH, Provost, Emeritus; Professor of Psychology, Emeritus, College of
Arts and Science; Professor of Medicine, Emeritus
B.A. (Notre Dame 1972); M.A., Ph.D. (Kansas 1975, 1976) [1976]
- JOHN M. BURKE, Assistant Professor of Biological Sciences
B.S. (Minnesota 1993); Ph.D. (Georgia 1999) [2002]

- J. PATOUT BURNS, Edward A. Malloy Professor of Catholic Studies; Professor of Religious Studies (On leave 2004/2005)
B.A., M.A. (Spring Hill 1963, 1964); M.Div. (Regis [Canada] 1970); M.Th. (University of St. Michael's College [Canada] 1971); Ph.D. (Yale 1974) [1999]
- VICTORIA A. BURRUS, Associate Professor of Spanish and Acting Chair of the Department of Spanish and Portuguese
B.S., M.A., Ph.D. (Wisconsin 1974, 1976, 1985) [1986]
- WILLIAM CAFERRO, Associate Professor of History
B.A. (Haverford 1984); Ph.D. (Yale 1992) [1998]
- ERNEST Q. CAMPBELL, Professor of Sociology, Emeritus; Dean of the Graduate School, Emeritus
B.A. (Furman 1945); M.A. (Pennsylvania 1946); Ph.D. (Vanderbilt 1956) [1963]
- KAREN E. CAMPBELL, Associate Professor of Sociology
A.B. (Randolph-Macon Woman's 1977); M.A., Ph.D. (North Carolina 1982, 1985) [1985]
- CRISTINA CAPELLA, Senior Lecturer in Spanish
Licenciada en Filología Hispanica (Universidad de Valencia 1996) [2001]
- RICHARD CAPIROLI, Stanley Cohen Professor of Biochemistry; Professor of Pharmacology; Professor of Chemistry
B.S., Ph.D. (Columbia 1965, 1969) [1998]
- DAVID LEE CARLTON, Associate Professor of History
B.A. (Amherst 1970); M.A., M.Phil., Ph.D. (Yale 1974, 1974, 1977) [1983]
- LAURA M. CARPENTER, Assistant Professor of Sociology
B.S., B.A. (Boston University 1991); M.A., Ph.D. (Pennsylvania 1995, 1999) [2002]
- FRANK E. CARROLL, JR., Professor of Radiology and Radiological Sciences, Emeritus; Professor of Physics, Emeritus
B.S. (Saint Joseph's [Pennsylvania] 1963); M.D. (Hahnemann Medical College 1967) [1983]
- CLINT E. CARTER, Professor of Biological Sciences
B.A., M.A. (Loma Linda 1965, 1967); Ph.D. (California, Los Angeles 1971) [1973]
- VIVIEN A. CASAGRANDE, Professor of Cell and Developmental Biology; Professor of Psychology, College of Arts and Science; Professor of Ophthalmology and Visual Sciences; Investigator, John F. Kennedy Center for Research on Human Development
B.A. (Colorado 1964); Ph.D. (Duke 1973) [1976]
- MONICA J. CASPER, Associate Professor of Sociology; Director, Women's Studies Program
B.A. (Chicago 1988); Ph.D. (California, San Francisco 1995) [2004]
- KENNETH C. CATANIA, Assistant Professor of Biological Sciences
B.S. (Maryland 1989); M.S., Ph.D. (California, San Diego 1992, 1994) [1997]
- WILLIAM F. CAUL, Professor of Psychology, Emeritus, College of Arts and Science; Member, John F. Kennedy Center for Research on Human Development
B.A. (Bucknell 1960); M.S., Ph.D. (Carnegie Institute of Technology 1962, 1965) [1970]
- CHARLES RICHARD CHAPPELL, Research Professor of Physics; Director, Science and Research Communications; Executive Director, Dyer Observatory
B.A. (Vanderbilt 1965); Ph.D. (Rice 1968) [1997]
- WALTER J. CHAZIN, Professor of Biochemistry; Professor of Physics; Director, Center for Structural Biology
B.Sc. (McGill 1975); Ph.D. (Concordia 1983) [1999]
- TINA YIH-TING CHEN, Assistant Professor of English
B.A., M.A. (Georgetown 1992, 1993); Ph.D. (California, Berkeley 1998) [1998]
- MICHAEL SHAI CHERRY, Mellon Assistant Professor of Jewish Studies
B.A. (Claremont McKenna 1991); Ph.D. (Brandeis 2001) [2001]
- DAN M. CHURCH, Professor of French, Emeritus
B.A. (Wake Forest 1961); M.A. (Middlebury 1962); Ph.D. (Wisconsin 1967) [1967]

- LARRY R. CHURCHILL, Ann Geddes Stahlman Professor of Medical Ethics; Professor of Medicine; Professor of Religion; Professor of Philosophy
B.A. (Rhodes 1967); M.Div., Ph.D. (Duke 1970, 1973) [2002]
- KEVIN CLARK, Senior Lecturer in Managerial Studies
B.A. (Amherst 1978); M.S. (Dartmouth 1982) [2002]
- LYNN E. CLARKE, Assistant Professor of Communication Studies
B.S. (Carnegie Mellon 1993); M.A. (North Carolina 1998); Ph.D. (Northwestern 2003) [2002]
- JAY CLAYTON, William R. Kenan, Jr., Professor of English; Professor of English and Chair of the Department
B.A. (Yale 1974); Ph.D. (Virginia 1979) [1988]
- KEITH N. CLAYTON, Professor of Psychology, Emeritus, College of Arts and Science
B.A., M.A. (Southern Methodist 1956, 1957); Ph.D. (Northwestern 1960) [1960]
- DAVID E. CLIFFEL, Assistant Professor of Chemistry
B.S./B.E.E. (Dayton 1992); Ph.D. (Texas 1998) [2000]
- DALE COCKRELL, Professor of Musicology; Professor of American and Southern Studies
B.M., M.M., Ph.D. (Illinois 1971, 1973, 1978) [1996]
- WILLIAM J. COLLINS, Associate Professor of Economics
B.A., M.A., Ph.D. (Harvard 1993, 1995, 1998) [1998]
- JOHN J. COMPTON, Professor of Philosophy, Emeritus
B.A. (Wooster 1949); M.A., Ph.D. (Yale 1951, 1953) [1952]
- PAUL K. CONKIN, Distinguished Professor of History, Emeritus; Distinguished Research Professor of History
B.A. (Milligan 1951); M.A., Ph.D. (Vanderbilt 1953, 1957) [1979]
- BETH ANN CONKLIN, Associate Professor of Anthropology
A.B. (Colorado College 1976); Ph.D. (California, San Francisco 1980) [1991]
- JOHN P. CONLEY, Professor of Economics
B.A. (Chicago 1984); M.A., Ph.D. (Rochester 1987, 1990) [2002]
- ALAIN CONNES, Distinguished Professor of Mathematics
B.S., Ph.D. (École Normale Supérieure [Paris] 1970, 1973) [2003]
- ANN JENNALIE COOK, Professor of English, Emerita
B.A., M.A. (Oklahoma 1956, 1959); Ph.D. (Vanderbilt 1972) [1976]
- DANIEL B. CORNFIELD, Professor of Sociology; Acting Director, Institute for Public Policy Studies
A.B., A.M., Ph.D. (Chicago 1974, 1977, 1980) [1980]
- PAULA ANNE COVINGTON, Librarian, Central Library; Lecturer in Latin American Studies
B.A. (Syracuse 1969); M.L.S. (Peabody 1971); M.A. (Vanderbilt 1994) [1973]
- KATHERINE B. CRAWFORD, Assistant Professor of History
B.A. (Columbia College 1988); M.S., Ph.D. (Chicago 1991, 1997) [1999]
- JOHN CRISPIN, Professor of Spanish, Emeritus
B.A. (University of St. Thomas 1960); M.A., Ph.D. (Wisconsin 1962, 1967) [1965]
- LARRY S. CRIST, Professor of French, Emeritus
B.A. (Western Maryland 1955); M.A., Ph.D. (Princeton 1959, 1963) [1963]
- PHILIP S. CROOKE III, Professor of Mathematics; Professor of Education
B.S. (Stevens Institute of Technology 1966); Ph.D. (Cornell 1970) [1970]
- MARIO CRUCINI, Associate Professor of Economics and Vice Chair of the Department
B.A. (Western Ontario 1985); M.A., Ph.D. (Rochester 1989, 1991) [1999]
- STEVEN E. CSORNA, Associate Professor of Physics
B.S. (New York 1968); M.A., Ph.D. (Columbia 1970, 1974) [1978]
- WILLIAM W. DAMON, Professor of Economics and Business Administration; Professor of Management; Director, Managerial Studies
B.S. (Purdue 1965); M.B.A., Ph.D. (Cornell 1967, 1970) [1976]

- KATE DANIELS, Associate Professor of English; Associate Dean, College of Arts and Science
B.A., M.A. (Virginia 1975, 1977); M.F.A. (Columbia 1980) [1995]
- ANDREW F. DAUGHETY, Professor of Economics; Professor of Law
B.S. (Case Institute of Technology 1969); M.S., Ph.D. (Case Western Reserve 1971, 1972); M.A. (Southern California 1975) [1995]
- DAVID DAVIS, Lecturer in Religious Studies
B.A. (American 1958); M.A., D.H.L. (Hebrew Union 1990, 1990) [2001]
- DENISE D. DAVIS, Assistant Professor of Psychology, College of Arts and Science
B.S. (Florida State 1977); Ph.D. (South Carolina 1982) [1988]
- THADIOUS M. DAVIS, Gertrude Conaway Vanderbilt Professor of English
B.S. (Southern 1966); M.A. (Atlanta 1968); Ph.D. (Boston 1976) [1995]
- JOAN DAYAN, Robert Penn Warren Professor in the Humanities; Professor of English
B.A. (Smith 1971); Ph.D. (City University Graduate Center 1980) [2004]
- MARÍA JOSÉ DE LA FUENTE, Assistant Professor of Spanish
Licenciatura, Facultad de Lengua y Literatura Española, M.A. (Salamanca [Spain] 1988, 1990, 1992); Ph.D. (Georgetown 1998) [2001]
- NATHALIE A. DEBRAUWERE-MILLER, Assistant Professor of French
Ph.D. (Emory 2000) [2001]
- SARAH DELASSUS, Senior Lecturer in Spanish
B.A. (Albright 1997); M.A. (Virginia 1999) [2001]
- CHARLES F. DELZELL, Professor of History, Emeritus
B.S. (Oregon 1941); M.A., Ph.D. (Stanford 1943, 1951) [1952]
- ARTHUR A. DEMAREST, Ingram Professor of Anthropology
B.A. (Tulane 1974); A.M., Ph.D. (Harvard 1977, 1981) [1983]
- SUSAN A. DEMAY, Senior Lecturer in Art
B.A. (Eckerd 1977); M.S. (Peabody 1979); M.A. (Tennessee Technological 1989) [1986]
- ANNE T. DEMO, Assistant Professor of Communication Studies
B.A. (George Mason 1991); M.A., Ph.D. (Pennsylvania State 1995, 1999) [1999]
- CAROLYN DEVER, Associate Professor of English; Associate Dean, College of Arts and Science
A.B. (Boston College 1988); A.M., Ph.D. (Harvard 1990, 1993) [1999]
- EMMANUELE DIBENEDETTO, Centennial Professor of Mathematics; Professor of Molecular Physiology and Biophysics
B.A. (Università di Firenze 1975); Ph.D. (Texas 1979) [2000]
- RORY C. DICKER, Senior Lecturer in English; Senior Lecturer in Women's Studies
B.A. (Johns Hopkins 1991); M.A., Ph.D. (Vanderbilt 1994, 1998) [2003]
- DENNIS C. DICKERSON, Professor of History
B.A. (Lincoln 1971); M.A., Ph.D. (Washington University 1974, 1978) [1999]
- JAMES H. DICKERSON II, Assistant Professor of Physics
B.A. (Amherst College 1994); M.A., Ph.D. (SUNY, Stony Brook 1999, 2002) [2004]
- NATHALIE DIEU-PORTER, Senior Lecturer in French
B.A., M.A. (Université de Mons-Hainaut [Belgium] 1989, 1996) [1997]
- TOM D. DILLEHAY, Distinguished Professor of Anthropology; Professor of Anthropology
B.A. (North Texas 1970); Ph.D. (Texas 1976) [2004]
- ROBERT V. DILTS, Professor of Chemistry, Emeritus
B.A. (Wesleyan 1951); M.A., Ph.D. (Princeton 1953, 1954) [1960]
- IDIT DOBBS-WEINSTEIN, Associate Professor of Philosophy
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- CLEMENT DORE, Professor of Philosophy, Emeritus
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- WILLIAM MCMINN, Adjunct Associate Professor of Teacher Education
B.M.E. (Tennessee Technological 1966) [2003]
- ELLEN MENKING, Adjunct Artist Teacher of Oboe
B.Mus. (Vanderbilt 1992); M.M. (Indiana 1996) [1997]
- EDGAR MEYER, Adjunct Associate Professor of Bass
B.M. (Indiana 1983) [1984]
- DAVID MITCHELL, Adjunct Artist Teacher of Clarinet
B.M. (DePaul 1996) [1997]
- CHERI MONTGOMERY, Lecturer in Voice
B.M., M.M. (Tennessee 1987, 1990) [2002]
- CRAIG E. NELSON, Adjunct Assistant Professor of Bass
B.M. (Michigan 1978) [2000]
- CAROL REINER NIES, Adjunct Senior Artist Teacher of Conducting; Director of the
Nashville Youth Orchestra Program
B.M. (Miami [Florida] 1979); M.M. (Yale 1981); D.M.A. (Cincinnati 2001) [1996]

- CRAIG NIES, Associate Professor of Piano; Co-Chair of the Keyboard Department
B.M. (Curtis 1974); M.M., M.M.A. (Yale 1979, 1980); D.Mus.A. (SUNY, Stony Brook 1991) [1991]
- LESLIE NORTON, Assistant Professor of Horn
B.M., Performer's Certificate (Eastman 1984, 1984) [1989]
- CLARA MARY OLSON, Adjunct Artist Teacher of Violin
B.M. (Cincinnati 1984) [1991]
- SARAH PAGE, Lecturer in Aural Studies
B.Mus. (Vanderbilt 1995); M.Mus. (Georgia 2000) [2000]
- KATHLEEN PEARSON, Adjunct Instructor in Fiddle
B.M. (Southern Mississippi 1995) [2002]
- JOE REA PHILLIPS, Senior Artist Teacher of Guitar; Assistant to the Dean
B.S., M.S. (Peabody 1977, 1977) [1985]
- CRYSTAL D. PLOHMAN, Artist Teacher of Fiddle and Director of the Fiddling Program;
Co-Coordinator of the Music Minor Program
[1994]
- KATHRYN PLUMMER, Associate Professor of Viola and Chair of the Strings Department
B.M. (Indiana 1970) [1974]
- TRACY PRENTICE, Adjunct Assistant Professor of Voice
B.M. (Alabama 1978); M.M. (Yale 1981) [1983]
- JAMA A. REAGAN, Adjunct Artist Teacher of Piano
B.M. (North Carolina School of the Arts 1987); Associate Diploma (Royal College of Music 1992) [1997]
- DANIEL REINKER, Adjunct Associate Professor of Viola
B.M. (Cincinnati 1979); M.M. (Yale 1981) [2002]
- JOEL REIST, Adjunct Assistant Professor of Double Bass
B.F.A. (Carnegie Mellon 1993); M.M. (Rice 1996) [2004]
- JONATHAN A. RETZLAFF, Associate Professor of Voice and Chair of the Department
B.M. (Millikin 1979); M.M. (Wichita State 1981); D.M.A. (Arizona State 1990) [1997]
- KAYE KYUNGHEE RHEE, Adjunct Artist Teacher of Piano
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- NORMA GROBMAN ROGERS, Adjunct Senior Artist Teacher of Flute, Piccolo, and Recorder
B.M.E., M.S. (Indiana 1969, 1971) [1972]
- MELISSA K. ROSE, Assistant Professor of Piano
B.M. (West Chester 1983); M.M. (Yale 1985); D.M.A. (Michigan 1988) [1996]
- MICHAEL ALEC ROSE, Associate Professor of Composition
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B.S. (Mississippi 1978) [2002]
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B.M., M.M. (Northwestern 1968, 1969); Ph.D. (Iowa 1978) [1995]
- JOHN F. SAWYER, Professor of Music Performance, Emeritus; Dean of Blair School of Music, Emeritus
B.M. (Mississippi 1953); M.M. (Peabody 1954) [1964]
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- DAVID SCHNAUFER, Adjunct Associate Professor of Dulcimer
[1995]

- PAMELA SCHNELLER, Senior Lecturer in Choral Music; Director of the Vanderbilt Concert Choir; Director of the Children's Choral Program; Director of the Vanderbilt Community Chorus; Co-Coordinator of the Music Minor Program
B.S. (Illinois 1972); M.C.M. (Scarritt 1987) [1999]
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B.M. (Baldwin Wallace 1971); M.M. (Washington University 1975) [1998]
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- JULIA TANNER, Adjunct Artist Teacher of Cello
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- ROBERT J. BEIL, Professor of Engineering Mechanics, Emeritus
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PHOTOGRAPHS by Neil Brake, Sandy Campbell, Tim Campbell, Lynn Cradick, David Crenshaw, Daniel DuBois, Peyton Hoge, Gerald Holly, Billy Kingsley, Jonathan Rodgers, Jackie Rule, Andrew Sandlin, and Jeremy Teaford.

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