bulletin of
Duke University
2008-2009

Undergraduate Instruction
The information in this bulletin applies to the academic year 2008-2009 and is accurate and current, to the extent possible, as of April 24, 2008. The university reserves the right to change programs of study, academic requirements, teaching staff, the calendar, and other matters described herein without prior notice, in accordance with established procedures.

Duke University prohibits discrimination and harassment, and provides equal employment opportunity without regard to race, color, religion, national origin, disability, veteran status, sexual orientation, gender identity, sex, or age. The university also makes good faith efforts to recruit, employ, and promote qualified minorities, women, individuals with disabilities, and veterans. It admits qualified students to all the rights, privileges, programs, and activities generally accorded or made available to students. The university also does not tolerate harassment of any kind.

Questions, comments, or complaints of discrimination or harassment should be directed to the Office of the Vice-President for Institutional Equity, (919) 684-8222. Further information, as well as the complete text of the harassment policy, may be found at: http://www.duke.edu/web/equity/.

Duke University recognizes and utilizes electronic mail as a medium for official communications. The university provides all students with e-mail accounts as well as access to e-mail services from public clusters if students do not have personal computers of their own. All students are expected to access their e-mail accounts on a regular basis to check for and respond as necessary to such communications, just as they currently do with paper/postal service mail.

Information that the university is required to make available under the Student Right to Know and Campus Security Acts may be obtained from the Office of University Relations at (919) 684-2823 or in writing to 615 Chapel Drive, Box 90563, Duke University, Durham, North Carolina 27708.

Duke University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, masters, doctorate, and professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Duke University.

The Bulletin of Duke University publishes the following titles: The Fuqua School of Business, Nicholas School of the Environment, Undergraduate Instruction, the Graduate School, The Medical Center, The Divinity School, Information for Prospective Students, Information for Graduate Studies, Summer Session, Graduate Program in Nursing, The School of Law, and The Duke Community Standard in Practice: A Guide for Undergraduates. Bulletins are also available online at: http://www.registrar.duke.edu/registrar/studentpages/student/bulletins.html

May 2008
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Academic Calendar

2008-2009

Trinity College of Arts and Sciences. The Pratt School of Engineering. Consult calendars of the various schools for additional information.

Summer 2008

February
25 Monday—Registration begins for all Summer sessions

May
14 Wednesday—Term I classes begin
The Monday class schedule is in effect on this day
Regular class meeting schedule begins on Thursday, May 15
Drop/Add continues
15 Thursday—Regular class meeting schedule begins
16 Friday—Drop/Add for Term I ends
26 Monday—Memorial Day. No classes are held

June
11 Wednesday—Last day to withdraw WP or WF from Term I classes
23 Monday—Term I classes end
24 Tuesday—Reading period
25 Wednesday—Term I final examinations begin
26 Thursday—Term I final examinations end
30 Monday—Term II classes begin

July
2 Wednesday—Drop/Add for Term II ends
4 Friday—Independence Day Holiday. No classes are held
28 Monday—Last day to withdraw WP or WF from Term II classes

August
7 Thursday—Term II classes end
8 Friday—Reading period (until 7:00 p.m.)
7:00 p.m.—Term II final examinations begin
10 Sunday—Term II final examinations end

Fall 2008

August
19 Tuesday—New student orientation begins
20 Wednesday, 11:00 a.m.—Convocation for new students
25 Monday, 8:30 a.m.—Fall semester classes begin. Drop/Add continues

September
1 Monday—Labor Day. Classes in session
5 Friday, 5:00 p.m.—Drop/Add ends

October
5 Sunday—Founders’ Day
10 Friday, 7:00 p.m.—Fall break begins;
Last day for reporting midsemester grades
15 Wednesday, 8:30 a.m.—Classes resume
29 Wednesday—Registration begins for Spring semester, 2009
November
12 Wednesday—Registration ends for Spring semester, 2009
13 Thursday—Drop/Add begins
25 Tuesday, 10:30 p.m.—Thanksgiving recess begins

December
1 Monday, 8:30 a.m.—Classes resume
5 Friday—Fall semester classes end
6-8 Saturday-Monday—Reading period
9 Tuesday, 9:00 a.m.—Final examinations begin
14 Sunday, 10:00 p.m.—Final examinations end

Spring 2009
January
7 Wednesday, 8:30 a.m.—Spring semester classes begin
The Monday class schedule is in effect on this day
Regular class meeting schedule begins on Thursday, January 8
Classes meeting in a Wednesday/Friday meeting pattern begin January 9
Drop/Add continues
8 Thursday—Regular class meeting schedule begins
19 Monday—Martin Luther King, Jr. Day holiday: classes are rescheduled to be
   held on Wednesday, January 7
21 Wednesday, 5:00 p.m.—Drop/Add ends

February
20 Friday—Last day for reporting midsemester grades
23 Monday—Registration begins for Summer 2009

March
6 Friday, 7:00 p.m.—Spring recess begins
16 Monday, 8:30 a.m.—Classes resume

April
1 Wednesday—Registration begins for Fall semester, 2009
10 Friday—Registration ends for Fall semester, 2009;
   Summer 2009 registration continues
11 Saturday—Drop/Add begins
22 Wednesday—Spring semester classes end
23-26 Thursday-Sunday—Reading period
27 Monday—Final examinations begin
29 Wednesday, 9:00 a.m.-2:00 p.m.—Reading period

May
2 Saturday, 10:00 p.m.—Final examinations end
8 Friday—Commencement begins
10 Sunday—Graduation exercises. Conferring of degrees
University Administration

GENERAL ADMINISTRATION

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Victor J. Dzau, MD, Chancellor for Health Affairs; and President and Chief Executive Officer, Duke University Health System, Inc.
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Huntington F. Willard, PhD, Vice-Chancellor for Genome Sciences and Director of the Institute for Genome Sciences and Policy
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Sarah J. Deutsch, PhD, Dean of the Social Sciences
Alvin L. Crumbliss, PhD, Dean of the Natural Sciences
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Lynn K. White, MD, Assistant Dean for the Undeclared and Mathematical Sciences
Aaron J. Todd, MS, Assistant Dean, Academic Advising Center
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Tod Laursen, PhD, Senior Associate Dean for Education
Linda Franzoni, PhD, Associate Dean for Student Programs
Constance E. Simmons, MBA, Associate Dean for Undergraduate Affairs

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Zoila Airall, PhD, Assistant Vice President of Student Affairs for Campus Life
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Caroline Nisbet, MA, Assistant Vice President of Student Affairs for Resource Administration
William Purdy, MD, Executive Director, Student Health Center
Suzanne Wasiolek, MHA, JD, LLM, Assistant Vice President of Student Affairs and Dean of Students

ADMISSIONS AND FINANCIAL AID
Christoph O. Guttentag, MA, Dean of Undergraduate Admissions
James A. Belvin, Jr., AB, Director, Office of Undergraduate Financial Aid
General Information
Duke University

Duke University was created in 1924 by James Buchanan Duke as a memorial to his father, Washington Duke. The Dukes—a Durham family that built a worldwide financial empire in the manufacture of tobacco and the production of electricity in the Carolinas—had long been interested in Trinity College, the predecessor of Duke University. Trinity traced its roots to 1838 in nearby Randolph County, when local Methodist and Quaker communities joined forces to support a permanent school that they named Union Institute. After a brief period as Normal College (1851-59), a teacher-training institution, the school changed its name to Trinity in 1859, became a liberal arts college, and affiliated with the Methodist Church. The college moved to the growing city of Durham in 1892 when Washington Duke provided financial assistance and another local businessman, Julian S. Carr, donated land. In December 1924, the trustees graciously accepted the provisions of James B. Duke’s indenture creating the family philanthropic foundation, the Duke Endowment, which provided, in part, for the expansion of Trinity College into Duke University.

As a result of the Duke gift, Trinity underwent both academic and physical expansion. The original Durham campus became known as East Campus when it was rebuilt in stately Georgian architecture. West Campus, Gothic in style and dominated by the soaring tower of the Chapel, opened in 1930. East Campus then served as the home of the Woman’s College of Duke University until 1972, when the men’s and women’s colleges merged into the Trinity College of Arts and Sciences. Today, East Campus houses all first-year undergraduate students.

Duke has a long history of educating women. Three young women, the Giles sisters, received Trinity College degrees in 1878. Washington Duke’s gift to the school’s endowment in 1896 was based on the condition that the college would treat women "on an equal footing" by establishing an on-campus residence for them. When West Campus opened in 1930, the original Durham campus became the Women’s College of Duke University while Trinity continued as the name of the men’s undergraduate college. Now, about equal numbers of undergraduate women and men attend Trinity College and the Pratt School of Engineering combined.

Duke, likewise, has a long history in engineering. Beginning as early as 1851, engineering courses were taught intermittently in the nineteenth century. Engineering
began a permanent department in 1910, an undergraduate College of Engineering in 1939, and a School of Engineering in 1966 with the addition of graduate courses. The school was renamed the Edmund T. Pratt Jr. School of Engineering in 1999.

Academic expansion of the university throughout its history has included the establishment of other new graduate and professional schools as well. The first Divinity [B.D.] degree was awarded in 1927, the first Ph.D. in 1929, and the first M.D. in 1932. The School of Law, founded in 1904, was reorganized in 1930. The following year, the undergraduate School of Nursing was born, transforming in 1984 to a graduate school. The School of Forestry, which was founded in 1938, became the School of Forestry and Environmental Studies in 1974 and was renamed the Nicholas School of the Environment in 1995, adding "and Earth Sciences" to its name in 2000. The last professional school to become part of Duke University, the business school, was established in 1969 and renamed the Fuqua School of Business in 1980.

Modern times have seen Duke realize its founders’ aspirations, becoming a major center of learning far removed from its origins in a log schoolhouse in rural Randolph County. Its reach is now global. Many Duke schools and departments are consistently ranked among the nation’s very best, and several have achieved international prominence. The university frequently wins attention for its research achievements and academic innovations, and its faculty often is called upon to provide leaders for academic and professional organizations. Duke continues to work hard to honor James B. Duke’s charge to attain "a place of real leadership in the educational world."

Today, Duke embraces a diverse community of learners, including approximately 6,000 undergraduates from a multiplicity of backgrounds. Its motto, Eruditio and Religio, reflects the university’s fundamental belief in the union of knowledge and faith, the advancement of learning, and the defense of scholarship; its love of freedom and truth; and its valuation of service to others. Duke University has encouraged generations of students to understand and appreciate the world they live in, their opportunities, and their responsibilities.

For more information, visit http://www.duke.edu/web/Archives/.

The Mission of Duke University

James B. Duke's founding indenture of Duke University directed the members of the University to "provide real leadership in the educational world" by choosing individuals of "outstanding character, ability and vision" to serve as its officers, trustees and faculty; by carefully selecting students of "character, determination and application"; and by pursuing those areas of teaching and scholarship that would "most help to develop our resources, increase our wisdom, and promote human happiness."

To these ends, the mission of Duke University is to provide a superior liberal education to undergraduate students, attending not only to their intellectual growth but also to their development as adults committed to high ethical standards and full participation as leaders in their communities; to prepare future members of the learned professions for lives of skilled and ethical service by providing excellent graduate and professional education; to advance the frontiers of knowledge and contribute boldly to the international community of scholarship; to promote an intellectual environment built on a commitment to free and open inquiry; to help those who suffer, to cure disease and promote health, through sophisticated medical research and thoughtful patient care; to provide wide ranging
educational opportunities, on and beyond our campuses, for traditional students, active professionals and life-long learners using the power of information technologies; and to promote a deep appreciation for the range of human difference and potential, a sense of the obligations and rewards of citizenship, and a commitment to learning, freedom and truth.

By pursuing these objectives with vision and integrity, Duke University seeks to engage the mind, elevate the spirit, and stimulate the best effort of all who are associated with the University; to contribute in diverse ways to the local community, the state, the nation and the world; and to attain and maintain a place of real leadership in all that we do.

Resources of the University

The Faculty. Duke University originated as an undergraduate college in the nineteenth century. Its awarding of graduate and professional degrees and its preeminence in many fields of research came significantly later. Today, the sustaining of an historic devotion to undergraduate teaching is a major priority for Duke University. Duke commits itself to facilitating a sound education for its undergraduate students, most significantly through its building of a strong faculty with expectations for personal attention to teaching along with dedication to research. Indeed, one of our most highly innovative faculty awards, the Bass Professorship, recognizes and fosters cross-fertilization between research interests and pedagogy.

In recent years, Duke has made major efforts to expand the breadth and quality of the faculty across the spectrum of disciplines. The overall university faculty now contains more than 2,000 full-time members, supplemented by instructors whose expertise in the field has qualified them for teaching. Recognizing that a diverse faculty enriches the curriculum and the overall undergraduate experience, Duke seeks to build its faculty with attention to what the whole person brings to the classroom. Faculty research of international acclaim informs undergraduate coursework, and classrooms commonly serve as incubators for new ideas. Undergraduates interact with senior faculty on a regular basis, including freshmen students in the Focus program and a series of first-year seminars designed just for them. A number of faculty in the professional schools teach and mentor undergraduates, not only in the classroom but also through independent studies. Interdisciplinary teaching and learning are increasingly emphasized at Duke University in order to confront the complex intellectual and cultural challenges of our modern, global society.

The Library System. All Duke libraries, including those at the Divinity School, the Fuqua School of Business, the Law School, and the Duke University Medical Center, are open to undergraduates. Library services directed especially to undergraduates are available at the Lilly and Music libraries on East Campus, and on West Campus at the Perkins and Bostock libraries, the Rare Book, Manuscript, and Special Collections Library, and the Biological and Environmental Sciences Library. The Duke libraries Web site http://library.duke.edu is a gateway to books, journals, and databases as well as a source of information on topics such as selecting resources and citing them in a paper.

“Save time, ask us” is the motto of the Duke librarians who work with students at information desks in the libraries and via telephone, e-mail, chat reference, and IM. Chat reference assistance and IM are available twenty-four hours a day, seven days a week and are accessible from the library Web site. In addition, librarians will meet by appointment
with students for individual research consultations in which they help identify useful sources for a research project, discuss searching databases effectively, or just offer advice for getting started in the library. East Campus librarians also take their laptops and go into the residence halls to help students with research as part of the “Librarian in the House” program. Subject specialist librarians are available for research consultations on a particular topic.

Every campus library features wireless and high speed Internet access as well as access to the online catalogs of materials held by all Duke libraries and the libraries of North Carolina State University, North Carolina Central University, and the University of North Carolina at Chapel Hill. Using a Duke I.D., undergraduates can borrow books from any of these libraries.

Undergraduates are encouraged to become familiar with all the Duke libraries because each collection has its own character. The Lilly Library on East Campus houses the collections for the visual arts, art history, philosophy, and theater studies, and has services geared especially to first-year students. Undergraduates also have access to Lilly’s more than 15,000 feature films and documentaries as well as experimental and animated productions. In addition, Devil DVDs, a collection of current, popular DVDs, is available to students only. The Devil DVDs program is co-sponsored by Lilly and Duke Student Government. The Music Library and Music Media Center, also on East Campus, have a rapidly expanding collection of music scores, books, journals and music-related media, including more than 10,000 CDs, thousands of LPs (many jazz), and hundreds of DVDs and VHS recordings that students can check out.

On West Campus, the William R. Perkins Library and the adjoining Bostock Library and von der Heyden Pavilion form the university’s main research library complex. The collections support the social sciences and humanities, plus chemistry, engineering, mathematics, physics, statistics, and computer and decision sciences, and reflect Duke’s emphasis on interdisciplinarity and the university’s international focus. There are extensive collections from and about East and South Asia, Latin America, Africa, and Europe as well the United States and one of this country’s largest collections of Canadiana. The print collections are complemented by electronic resources: tens of thousands of e-journals, databases, and statistical tools. The information commons on the first floor of Perkins and the first floor and lower level of Bostock are outfitted with computers loaded with an array of software, including Microsoft Office, media players, and Web browsers. Selected computers have scanning, networking, and Web development capabilities. Perkins lower floor 1 houses a teaching and learning commons where there are interactive classrooms and smaller workshop/studio spaces designed to accommodate six to eight students collaborating in work groups. Perkins and Bostock also offer a variety of study spaces. There are secluded carrels and informal seating as well as large reading rooms, many with spectacular views of the campus. The glass-walled von der Heyden Pavilion, home of the Perk, the library’s café, is a popular destination for study and conversation as well as a cup of coffee.

Duke undergraduates have the opportunity at the Rare Book, Manuscript, and Special Collections Library (RBMSCL) to use unique and rare materials that range from ancient papyri to the records of twentieth-century advertising. The collections support research in a wide variety of disciplines and programs, including African American studies, anthropology, classics, economics, history, literature, political science, religion, sociology, and women’s studies. Librarians work with individual students and make class presentations
to help identify materials related to research projects. To encourage undergraduate use of its holdings, this library annually offers the Middlesworth Award for the best undergraduate paper written using materials from the library’s collections. Digital versions of selected materials from the RBMSCL are available at the library’s Web site: http://library.duke.edu/specialcollections/. The Duke University Archives, also part of the RBMSCL, collects, preserves, and administers the records of the university, including the records of student organizations.

The Biological and Environmental Sciences Library, also located on West Campus, supports botany, zoology, ecology, molecular and cell biology, environmental sciences, forestry, hydrology, and meteorology. The Pearse Memorial Library is located in Beaufort, North Carolina, at the Duke Marine Laboratory. Its holdings are in marine sciences and policy-related aspects of the marine environment. For more information about the science libraries, see: http://www.lib.duke.edu/science/.

The Duke libraries host film screenings, lectures, author visits, book discussions and other events that are open to students. One of the most popular is Professor Reynolds Price’s Halloween reading of poems, stories and essays. In addition, the Friends of the Duke University Libraries sponsor contests and awards for students. The Lionel Stevenson Essay Contest and the Jeremy North Student Book Collectors Contest are offered in alternating years. Each carries a first prize of a $500 gift certificate redeemable at the Gothic Bookshop. The Friends also sponsor a $750 award that supports undergraduate summer research in archives, museums, and libraries. The award is administered by the university’s Undergraduate Research Support Office and is presented annually. The Friends’ most popular student event may be the study break it hosts at the Perkins and Lilly libraries at the end of every semester during exams. Students are offered homemade baked goods, beverages, and encouragement.

The Medical Center Library. The Medical Center Library, located in the Seeley G. Mudd Building, provides the services and collections necessary to further educational, research, and clinical activities in the medical field. Services are available to Medical Center faculty, staff, and students from the School of Medicine, School of Nursing, Division of Allied Health, and Duke Hospital; as well as graduate departments in the basic medical sciences.

Over 298,725 volumes are available, including the Trent Collection in the History of Medicine. Approximately 175 current print-only subscriptions and 4,304 electronic journal titles are available. The library has extensive back files of older volumes. The Medical Library Education Center (MLEC), located on the lower level of the library, houses an electronic classroom for hands-on computer training. The Frank Engel Memorial Collection consists of a small group of books on consumer health and nonmedical subjects for general reading, together with several newspapers and popular magazines.

Traditional library services include reference, circulation, Internet assistance, and document delivery services which are supplemented by mediated and self-service online database searching. Public workstations for searching databases and the online catalog are available in the reference area and other areas of the library. Detailed information on services and resources may be found in the information guides available at the library.

The School of Law Library. The School of Law Library, with over 620,000 volumes, serves both the university and the local legal community. It is a major research collection.
of legal literature that includes reported decisions of federal and state courts, current and retrospective collections of federal and state codes, regulations, and session laws. The Law Library relies increasingly on electronic sources of legal information while continuing to develop and maintain in-house collections of print and other resources to support research and scholarship. All materials are included in the Duke University Libraries online catalog and other tools for finding and accessing electronic resources. The periodical collection includes current and retrospective access to all major law journals, bar association publications, institute proceedings and newsletters. A large section of the library collection is devoted to treatises on all phases of law, as well as history, economics, government, and other social and behavioral sciences relevant to legal research. Special treatise collections are maintained in several subject areas, including the George C. Christie collection in jurisprudence and the Floyd S. Riddick collection of autographed senatorial material. The library is a selective depository for United States government publications, with concentration on congressional, judicial, and administrative law materials. In addition to its U.S. holdings, the library holds substantial research collections in foreign and international law. The foreign law collection is extensive in coverage, with long-standing concentrations in European law and business law materials, and growing collections in Asian and Latin American law. The international law collection is strong in primary source and treatise material on both private and public international law topics. Researchers in the law library have access to an increasing number of electronic databases for both general and specialized legal research. The library staff is highly knowledgeable in law, legal research, and in the uses of information technology and can assist in all facets of legal research and library use. Undergraduate and graduate students whose course of study requires access to legal literature are welcome to use the library and check out circulating materials.

The Office of Information Technology. The Office of Information Technology (OIT) is responsible for computing and communications services and support for the university community. OIT's Web site, www.oit.duke.edu, offers software downloads, detailed procedures, numerous contact points, and many other resources to help students, faculty, and staff make the most of information technology resources at Duke.

Computing. All undergraduate residence halls and Central Campus apartments are wired for direct access to Duke’s campus-wide computer network, and, beginning this year, all residence halls will be equipped with the latest high-speed wireless. Members of the Duke community are assigned their own e-mail accounts, which they have access to from their own computers or from computers on any Internet-enabled computer via Webmail. During the first weeks of school, OIT helps students establish their network connections and provides them with free help getting started on the Internet.

Storage and Backup Services. OIT offers personal Web-based storage (WebFiles) and discount automatic personal-computer backup services through a vendor. For more information, see http://www.oit.duke.edu/comp-print/storage/index.html

SWAT (Students Workers Assisting with Technology). One of OIT’s first priorities when students arrive on campus is to make sure they get connected to the Duke network. SWAT, a team of technically trained student consultants, visits the residence halls and ensures that all students’ personal computers are connected to DukeNet within the first week of classes. SWAT takes place at the beginning of each school year.
Help Desk. Help Desk staff are available to assist students with Duke supported software, hardware, and services. The Help Desk web site is at: www.oit.duke.edu/helpdesk.

Computer Labs, Kiosks, and ePrinter. There are more than 20 general purpose computer labs across Duke. The labs have been designed to meet a wide spectrum of student needs and include a campus-wide array of printers called ePrint. In addition to the general-purpose computer labs, OIT oversees a number of Internet kiosks and public ePrint stations. For additional information, visit www.oit.duke.edu/comp-print.

Technology Training. Hands-on training workshops are available to both graduate and undergraduate students on a number of popular software applications such as Macromedia Dreamweaver, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, InDesign, and computer security. The workshops are typically one-hour sessions filled with useful, skill-building techniques. For additional information or to register for a workshop, visit www.oit.duke.edu/help/training/.

Telephones. Duke offers optional telephone service in on-campus residences. There is a monthly fee for the local service, and long distance is billed on a per-minute basis. Other rate-based services include paging and cellular service. For more information, see www.oit.duke.edu/phones-pagers/student/.

Cable Television. DTV, Duke Cable Television, provides TV both free and pay-service packages. For more information, see www.oit.duke.edu/phones-pagers/student/.

Science Laboratories. In addition to the teaching and research laboratories in the departments of natural and social sciences and in the Pratt School of Engineering, there are other facilities in which some advanced undergraduates work on individual projects. These include the Duke University Marine Laboratory in Beaufort, North Carolina; the Duke Forest, adjacent to the campus; the Duke University Lemur Center in Duke Forest; the Triangle Universities Nuclear Laboratory; and the Brain Imaging and Analysis Center in the Medical Center. The Levine Science Research Center, which opened in 1994, houses 341,000 gross square feet consisting of laboratories, office, and classroom space for interdisciplinary science research, state-of-the-art teaching laboratories, and shared instrumentation facilities. It also houses the Center for Cognitive Neuroscience. Undergraduates have the opportunity to pursue research in an array of science facilities across the campus, including the Medical Center, the Fitzpatrick Center for Engineering, Medicine and Applied Sciences, and the French Family Science Center.

Duke as a Residential University

Duke enjoys a long tradition as a residential university and has sought to provide for undergraduates attractive on-campus housing in both residence halls and apartments. While the university was established to provide a formal educational opportunity for students, Duke has always taken the position that education encompasses social and personal development as well as spiritual and intellectual growth. Duke seeks to provide a supportive environment substantially anchored in its residential program.

Educational, cultural, recreational, social, and outdoor adventure programming is planned and presented throughout the year for living groups through the cooperative work of Student Affairs, Trinity College of Arts and Sciences, the Pratt School of Engineering, and resident students. There are a number of faculty members who live in residence halls. Seminar rooms are also located in several houses. The goals of these various programs are
to enhance the quality of intellectual and social life for the residents on campus, to facilitate student-faculty interaction outside of the formal classroom setting, and to develop a greater sense of community within the individual residence halls as well as within the greater university.

The Undergraduate College and School

In Trinity College of Arts and Sciences and the Pratt School of Engineering, instruction is offered by university faculty who engage in research and in graduate and undergraduate teaching. Duke offers its undergraduates the opportunity to study with many internationally recognized experts in their disciplines and with faculty members who are jointly committed to undergraduate instruction and to the advancement of knowledge. The university recognizes that students learn not only through formal lectures, but also through the interplay of ideas among faculty members and students; thus, it offers undergraduates opportunities to test their ideas against those of their professors and to engage with those who have committed their lives to academic careers.

The university, if it is doing its job properly, is educating citizens of the United States and of the world, not only individuals aspiring to personal fulfillment. At Duke, the men and women who earn degrees are likely to become leaders in industry, government, and the professions. They will have influence on and will be influenced by the social fabric of which they are a part. The kind of people they become will matter not only to them and their families, but also to their communities, to the United States, and to the countries of the rest of the world.

Amidst changing external conditions, the university must ensure that students acquire the tools and flexibility to prepare them for life-long learning activities.

Trinity College of Arts and Sciences. Trinity College is the undergraduate liberal arts college within the School of Arts and Sciences. Situating the liberal arts college at the heart of a major research university provides Trinity students with opportunities to connect to the full array of faculty scholarship. Within Arts and Sciences, approximately 620 Arts and Sciences faculty from 32 departments and programs teach in the undergraduate program. The undergraduate educational experience is rated one of the finest in the country. Distinctive characteristics are interdisciplinary programs that build bridges among fields, emphasis on internationalization, and an innovative undergraduate curriculum which affirms the values and skills of the liberal arts: critical thinking, problem solving, synthesis, and writing. The curriculum encourages the pedagogies of engagement, both within and outside the classroom, and opportunities for student research, internships, and service learning complement more formal coursework. Cross cultural fluency is integral, and some forty percent of Trinity students study abroad in semester, year, and summer programs. This innovative undergraduate course of study infuses students with the excitement of discovery and prepares them with the skills and experiences necessary for successful leadership and satisfying lives in the new millennium.

Pratt School of Engineering. The undergraduate engineering program at Duke University is designed both for students who intend to become professional engineers and for those who desire a modern, general education based on the problems and the promises of a technological society. The environment in which students are educated is as important in
shaping their future as their classroom experiences. In the Pratt School of Engineering this environment has two major components: one is modern technology derived from the research and design activities of faculty and students in the school; the other is the liberal arts environment of the total university, with its humanitarian, social, and scientific emphases.

Engineering is not a homogeneous discipline; it requires many special talents. Some faculty members in the Pratt School of Engineering are designers; they are goal-oriented, concerned with teaching students how to solve problems, how to synthesize relevant information and ideas and apply them in a creative, feasible design. Other engineering faculty members function more typically as scientists; they are method-oriented, using the techniques of their discipline in their teaching and research to investigate various natural and artificial phenomena.

**The Duke Community Standard**

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect and accountability. Citizens of this community commit to reflect upon these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will act if the Standard is compromised.
Degree Programs
Degrees and Academic Credit

Duke University offers in Trinity College of Arts and Sciences the degrees of Bachelor of Arts and Bachelor of Science, and in the Pratt School of Engineering the degree of Bachelor of Science in Engineering. Within the curriculum of each college or school, students have the major responsibility for designing and maintaining a course program appropriate to their background and goals. They are assisted by faculty advisors, departmental directors of undergraduate studies, and academic deans. Students must accept personal responsibility for understanding and meeting the requirements of the curriculum.

Credit toward a degree is earned in units called semester courses (1.0 s.c.), commonly abbreviated as courses, which ordinarily consist of three to four hours of instruction each week of the fall or spring semester or the equivalent total number of hours in a summer term. Double (2.0) courses, half (.5) courses, and quarter (.25) courses are also recognized.

Trinity College of Arts and Sciences

A variety of approaches to a liberal education is provided by Program I and II. Either program leads to the Bachelor of Arts or Bachelor of Science degree, and each requires thirty-four semester courses to satisfy the requirements for the degree.

PROGRAM I

This innovative curriculum is meant to encourage breadth as well as depth and provide structure as well as choice. It reflects Duke’s desire to dedicate its unique resources to preparing its students for the challenging and rapidly changing global environment. The curriculum provides a liberal arts education that asks students to engage a wide variety of subjects: arts, literatures, and performance; civilizations; natural sciences, quantitative studies; and social sciences. It supports a cross-cultural and interdisciplinary approach to knowledge and fosters the development of students’ abilities to read and think critically and in historically and ethically informed ways, to communicate lucidly and effectively, and to undertake and evaluate independent research.

The curriculum has two components: general education and the major.

The general education component includes two interrelated features: Areas of Knowledge and Modes of Inquiry. Since a course may have several intellectual goals and intended learning outcomes, it may potentially and simultaneously satisfy more than one general education requirement, as well as requirements of a major, minor, or certificate program.

Students must complete the requirements of the curriculum listed below and explained more fully on the following pages in order to satisfy the requirements for the degree. No degree requirements (including prerequisites), except the requirement for thirty-four courses credits and continuation requirements, may be met by a course passed under the pass/fail grading system.

General Education requirements consisting of the following:

Required Courses:

Areas of Knowledge. Two courses (totaling 2.0) in each of the following five areas:
- Arts, Literatures, and Performance (ALP)
- Civilizations (CZ)
- Natural Sciences (NS)
- Quantitative Studies (QS)
- Social Sciences (SS)

Modes of Inquiry. Courses designated as offering exposures to each of the following Inquiries, as indicated below:
- Cross-Cultural Inquiry (CCI): two (2.0) courses.
- Ethical Inquiry (EI): two (2.0) courses.
• *Science, Technology, and Society (STS)*: two (2.0) courses.

• *Foreign Language (FL)*: one to three courses (1.0 to 3.0) in the same language, determined by level of proficiency. The details of the FL requirement are explained more fully below.

• *Writing (W)*: three (3.0) courses, including Writing 20 in the first year, and two writing-intensive (W) courses in the disciplines, at least one of which must be taken after the first year.

• *Research (R)*: two (2.0) courses.

Advanced placement credits, international placement credits, and pre-matriculation credits for college courses taken elsewhere before matriculation in the first-year class at Duke do not count toward the general education requirements.

Independent Study courses do not count toward the general education requirements except for the Research designation, if officially designated as a research independent study course. A maximum of one research independent study (coded R) may be submitted toward the requirement of writing-intensive courses (W) in the disciplines.

Transfer courses and interinstitutional courses may be considered for approval to count toward the Area of Knowledge and Modes of Inquiry requirements.

**Small Group Learning Experiences**

• During the first year: one full-course seminar (i.e., a 1.0 semester credit course, not partial credit courses).

• After the first year: a total of two full (2.0) courses designated as seminars, tutorials, independent study, or a thesis course. (The total may include partial credit courses.)

**Course Credits**

There are several separate and specific requirements concerning course credits in Trinity College. Thirty-four (34) courses are required for graduation, not more than two with a grade of D, and including:

• No more than one credit of physical education activity (i.e., two half-credit activity courses, including military science physical activity courses), four credits of dance/American Dance Festival technique/performance (i.e., eight half-credit courses), two credits of house courses (i.e., four half-credit house courses), six from a professional school (e.g., business, engineering, law, medicine, environment courses numbered 200 or above), four in military science, and one credit from academic internships.

• The number of advanced placement, international placement credits, and transfer credits allowed. (See the sections on advanced placement and transfer of work elsewhere, in the chapter “Academic Procedures and Information.”)

**The Major**

The requirements for majors in the department or program in which a student wishes to obtain a bachelor’s degree (see below) are described after the course listings for each department or program.

**The Minor**

Minors are available although not required. They are described after the course listings for each department or program.

**Elective Courses**

Advanced placement credits, international placement credits, and pre-matriculation credit for college courses taken elsewhere before entering the first-year class may function only as elective courses. Other courses that a student is using as electives may or may not carry general education designations.
General Education Component

Areas of Knowledge. Historically, the ways in which knowledge has been organized reflect both differences in subject matter and methods of discovery. This delineation is dynamic, marked by increasing differentiation and an array of academic disciplines. Disciplines have traditionally been grouped into three divisions: humanities, social sciences, and natural sciences. Duke has chosen to divide the humanities and natural sciences further to assure that undergraduates engage the full range of substantive concerns and approaches there. Thus, the curriculum adopts the following division of courses: into the five areas of knowledge of arts, literatures, and performance; civilizations; natural sciences; quantitative studies; and social sciences. Through courses in arts, literatures, and performance, students learn about the creative products of the human intellect; courses about civilizations ask students to attend to the analysis and evaluation of ideas and events that shape civilizations past and present. Through courses in natural sciences students learn how to interpret and utilize information in an increasingly technological world, while courses in quantitative studies, including computer science, mathematics, and statistics, help develop skills of inference and analysis. Through courses in the social sciences students learn about the causes of human behavior and about the origins and functions of the social structures in which we operate. Because Duke believes that engagement with each is essential, not optional, for an informed and educated person in the twenty-first century, students must satisfactorily complete two courses in each area.

Modes of Inquiry. The first three of the six required Modes of Inquiry address important cross-cutting intellectual themes that represent enduring focal points of inquiry and involve application of knowledge to which many disciplines speak. Students need to be prepared to grapple with issues pertaining to them throughout their lives and careers. These themes are (1) cross-cultural; (2) ethical; and (3) involving science, technology, and society. Students must take two courses providing exposures in each of these three modes.

Cross-Cultural Inquiry (CCI). This Mode of Inquiry provides an academic engagement with the dynamics and interactions of culture(s) in a comparative or analytic perspective. It involves a scholarly, comparative, and integrative study of political, economic, aesthetic, social and cultural differences. It seeks to provide students with the tools to identify culture and cultural difference across time or place, between or within national boundaries. This includes but is not limited to the interplay between and among material circumstances, political economies, scientific understandings, social and aesthetic representations, and the relations between difference/diversity and power and privilege within and across societies. In fulfilling this requirement, students are encouraged to undertake comparisons that extend beyond national boundaries and their own national cultures and to explore the impact of increasing globalization.

Ethical Inquiry (EI). Undergraduate education is a formative period for engaging in critical analysis of ethical questions arising in human life. Students need to be able to assess critically the consequences of actions, both individual and social, and to sharpen their understanding of the ethical and political implications of public and personal decision-making. Thus, they need to develop and apply skills in ethical reasoning and to gain an understanding of a variety of ways in which, across time and place, ethical issues and values frame and shape human conduct and ways of life.

Science, Technology, and Society (STS). Advances in science and technology have wrought profound changes in the structure of society in the modern era. They have fundamentally changed the world, both its philosophical foundations, as in the Copernican or Darwinian revolutions, and in its practical everyday experience, as in the rise of the automobile and television. In the second half of the last century, the pace of such change accelerated dramatically; science and technology will play an even greater role in shaping the society of the future. If students are to be prepared to analyze and evaluate the scientific and technological issues that will confront them and to understand the world around them,
they need exposure to basic scientific concepts and to the processes by which scientific and technological advances are made and incorporated into society. They need to understand the interplay between science, technology, and society—that is, not only how science and technology have influenced the direction and development of society, but also how the needs of society have influenced the direction of science and technology.

The six required Modes of Inquiry also include Foreign Language, Writing, and Research.

**Foreign Language (FL).** Duke has set internationalization as an institutional priority in order to prepare students to live in an increasingly diverse and interdependent world. By developing proficiency in a foreign language, students can develop cross-cultural competency and become more successful members of their increasingly complex local, national, and international communities. Foreign language study substantially broadens students’ own experiences and helps them develop their intellect and gain respect for other peoples. Students need an awareness of how language frames and structures understanding and effective communication, and a study of foreign language improves students’ native language skills.

To satisfy the foreign language competency requirement students must complete one of the following:

1) For students who enter their language study at Duke at the intermediate level or above, and intend to complete their requirement in that language:
   Completion of a 100-level course that carries the FL designation. Therefore, students who place into the first semester of the intermediate level will take three full courses, students who place into the second semester of the intermediate level will take two full courses, and students who place into the 100 level will take one course.

   In acknowledgement of the differences in the acquisition process of non-cognate vs. cognate languages, course work through the intermediate level may, in some cases be sufficient for specific non-cognate languages. Such exceptions must be approved by the director of undergraduate studies in the department of that non-cognate language. Greek and Latin, and Romance and Germanic languages are the cognate languages offered at Duke.

   Russian requires an official written and oral proficiency examination at Duke for foreign language placement. Students in German will be tested during the first week of classes to verify placement. Students who plan to continue studying any other language should consult with the director of undergraduate studies in that language or see the table "College Board Tests" in the chapter "Academic Procedures and Information."

2) For students who begin their study of a foreign language at Duke in an elementary language (first or second semester) course, and intend to complete their requirement in that language:
   The successful completion of three full courses in the same language that carry the FL designation.

   Students must be registered in an FL designated course no later than the first semester of their sophomore year. However, in exceptional circumstances, students may petition their dean for an extension of this deadline. Foreign language courses below the intermediate level cannot be used to satisfy requirements in Areas of Knowledge or other Modes of Inquiry.

**Writing (W).** Effective writing is central to both learning and communication. To function successfully in the world, students need to be able to write clearly and effectively. To accomplish this, they need to have a sustained engagement with writing throughout their undergraduate career. Thus, students must take at least three writing courses at Duke: a) Writing 20 in their first year and b) two writing-intensive courses (W) in the disciplines, at least one of which must be taken after their first year. Through the latter type of courses students become familiar with the various modes and genres of writing used within an academic discipline and learn how the conventions and expectations for writing differ among the disciplines.
Research (R). As a research university, Duke seeks to connect undergraduate education to the broad continuum of scholarship reflected in its faculty. Such a rich setting provides students with opportunities to become involved in a community of learning and to engage in the process of discovery and move beyond being the passive recipients of knowledge that is transmitted to being an active participant in the discovery, critical evaluation, and application of knowledge and understanding. Engagement in research develops in students an understanding of the process by which new knowledge is created, organized, accessed, and synthesized. It also fosters a capacity for the critical evaluation of knowledge and the methods of discovery. This is important not only for undergraduates who wish to pursue further study at the graduate level, but also for those who seek employment in a rapidly changing and competitive marketplace. Students are required to complete two research exposures; one Research Independent Study (coded R) may be submitted for approval for the Writing in the disciplines (W) designation.

In addition to the descriptive representation of the general education requirements stated above, they may also be represented by the following matrix:

**General Education Course Requirements**

<table>
<thead>
<tr>
<th>Areas of Knowledge1 (Minimum required)</th>
<th>Modes of Inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cross-Cultural Inquiry</td>
</tr>
<tr>
<td>Arts, Literatures, and Performance (2)</td>
<td>2</td>
</tr>
<tr>
<td>Civilizations (2)</td>
<td></td>
</tr>
<tr>
<td>Natural Sciences (2)</td>
<td></td>
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<tr>
<td>Quantitative Studies (2)</td>
<td></td>
</tr>
<tr>
<td>Social Sciences (2)</td>
<td></td>
</tr>
<tr>
<td>Other2</td>
<td></td>
</tr>
<tr>
<td>Minimum Exposures Required</td>
<td>2</td>
</tr>
</tbody>
</table>

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1 Courses will be designated with regard to their Area(s) of Knowledge. Courses can be counted toward only one Area.

2 Courses offering exposures to Modes of Inquiry that do not count toward Areas of Knowledge.

3 The requirement is based on a required level of proficiency. No student will be required to take more than three courses. Foreign language courses below the intermediate level cannot be used to satisfy requirements in Areas of Knowledge or other Modes of Inquiry. Students must be registered in an FL designated course no later than the first semester of their sophomore year; however, in exceptional circumstances, students may petition their dean for an extension of this deadline.

4 Writing 20 must be taken in the first year; at least one of the two additional courses coded W must be taken after the first year.

N.B.: Independent Study Courses do not count toward the general education requirement. One Research Independent Study (coded R) may count toward the Writing in the Disciplines (W) requirement.

**Small Group Learning Experiences.** By supplementing the classroom and lecture methods of instruction, small group learning experience courses assure students opportuni-
ties to engage in discussion, develop skills, refine judgment, and defend ideas when challenged. A seminar (ordinarily indicated by the suffix S) is an independent course of twelve to fifteen (exceptionally to eighteen) students who, together with an instructor, engage in disciplined discussion. The number of meeting hours per term is the same as for regular courses of equivalent credit. Instructors are encouraged to present to each student at the end of the term a written evaluation of the student's work. A tutorial (T) is a group of one to five students and an instructor meeting for discussion which is independent of any other course. For independent study students pursue their own interests in reading, research, and writing, but meet with an instructor for guidance and discussion. See the section on independent study in the chapter "Academic Procedures and Information."

To meet the first-year seminar requirement, students who transfer to Duke with sophomore standing are required to complete a seminar by the end of their sophomore year at Duke or to submit documentation that they completed a seminar course at the college they attended previously.

While discussion sections (D) and preceptorials (P) do not satisfy the formal Small Group Learning Experience in the college, they offer additional opportunities for students to participate in small classes. A discussion section, with an enrollment limit set by the individual department, is an integral part of a larger regular course, and every member of the class is enrolled. A preceptorial (P) is a group of usually no more than twelve students and an instructor in which discussion is the primary component; it is an additional and optional unit attached to a regular course involving one or more extra meetings per week. No additional course credit is given for a preceptorial.

Instructors in all courses that satisfy the requirements for small group learning experiences, including independent study, must meet with the students at least once every two weeks during the spring/fall semesters and at least once every week during the summer terms. The requirements for small group learning experiences are listed under Program I, above.

Seminars and tutorials may not be taken on the pass/fail basis, unless the course is offered only on that basis.

Course Credits. Thirty-four semester courses are required for graduation, including a maximum of two courses passed with a grade of D. The thirty-four course credits may include (1) no more than one semester-course credit in physical education activity courses; (2) no more than four semester-course credits in dance/American Dance Festival technique/performance courses; (3) no more than two credits in house courses; (4) no more than six credits for courses taken in professional schools; (5) no more than one semester-course credit in elective academic internships; and (6) no more than four semester-course credits in military science. (American Dance Festival courses are included in the total limitation on dance technique/performance courses as noted above in this paragraph.) Certain military science courses listed as carrying credit do not count toward graduation but appear on a student's permanent academic record. Military science courses, like physical education courses, do not satisfy Area of Knowledge requirements. For limitations on transfer credit and Advanced Placement credit, see the sections on advanced placement and Transfer of Work Taken Elsewhere in the chapter "Academic Procedures and Information" and the Residence section immediately below.

Residence. A residence period of eight semesters is the typical amount of time a student may take to earn either the Bachelor of Arts or the Bachelor of Science degree. This period may be extended for one or two semesters by a student's academic dean for legitimate reasons if it seems probable that an extension will enable the student to complete all remaining requirements for graduation. A student will not be permitted residence of more than ten semesters in order to be graduated. For purposes of establishing the length of residence of a student admitted in transfer, the semesters completed at the institution previously attended are counted as semesters of residence at Duke.
For the minimum residence period, at least seventeen courses must be satisfactorily completed at Duke. If only seventeen courses are taken at Duke, they must include the student's last eight courses.

**Major, Minor, and Certificate Programs**

**The Major.** Students are expected to acquire some mastery of a particular discipline or interdisciplinary area as well as to achieve a breadth of intellectual experience. They therefore complete a departmental major, a program major, or an interdepartmental major. Departmental and program majors require a minimum of ten courses, at least eight of which must be at the 100 level or above. The interdepartmental major requires a minimum of fourteen courses, at least ten of which must be at the 100 level or above. The total number of courses that a department/program may require at any level in the major and related departments may not exceed seventeen semester courses for the Bachelor of Arts degree and nineteen semester courses for the Bachelor of Science degree. At least half the courses for a student's major field must be taken at Duke although individual departments and programs offering majors may require that a greater proportion be taken at Duke. Students are responsible for meeting the requirements of a major as stated in the bulletin for the year in which they matriculated in Trinity College although they have the option of meeting requirements in the major changed subsequent to the students' matriculation. A student who declares and completes requirements for two majors may have both listed on the official record. Two majors is the maximum number of majors that may be recorded on a student's record. See the chapter "Academic Procedures and Information" for the majors within each degree and for procedures on declaring a major.

**Departmental or Program Major.** The courses for a departmental major may include introductory or basic prerequisite courses and higher level courses in the major department or in the major department and related departments. Students may also complete work prescribed for a major in approved programs, often interdisciplinary. These departmental and program majors include: African and African American studies, art history, art history/visual arts (combined major), Asian and African languages and literature, biological anthropology and anatomy, biology, Canadian studies (second major only), chemistry, classical civilization, classical languages, computer science, cultural anthropology, dance, earth and ocean sciences, economics, English, environmental sciences, environmental sciences and policy, French studies, French/Italian (combined major), French/Spanish (combined major), German, history, international comparative studies, Italian and European studies, Italian/Spanish (combined major), linguistics, literature, mathematics, medieval and Renaissance studies, music, philosophy, physics, political science, psychology, public policy studies, religion, Russian, sociology, Spanish, statistical science, theater studies, visual arts, visual studies, and women's studies. The courses required for a major are specified by the department or program. The requirements appear in the section following each department or program's course descriptions in the chapter "Courses and Academic Programs."

**Interdepartmental Major.** A student may pursue an interdepartmental major in two Trinity College departments or programs that offer a major. The student will work with an advisor in each department to adopt an existing interdepartmental major or to design a new one. The courses of study must be approved by the directors of undergraduate studies in both departments. The Academic Advising Center and the academic deans will have available from departments a standard set of course criteria for their interdepartmental major. These criteria will define a course of study covering core features of each discipline, such as theory, methodology, and research techniques. The criteria must include at least fourteen courses, with at least ten at the 100 level or above; the courses must be split evenly between the departments. At least four of the seven courses required by each department is to be taught within the department. All courses must be among those normally accepted for a major in the two departments. The directors of undergraduate studies in the two departments must agree
students proposing an interdepartmental major must present a descriptive title for the major and a rationale for how the program of study will help them realize their intellectual goals.

**The Minor.** The courses required for a minor are specified by the department/academic program. Minors require a minimum of five courses, including at least three at the level of 100 or above. Further information about specific minors is available under the description of the individual department/academic programs in the chapter "Courses and Academic Programs." Students may not major and minor in the same department/program with the exception of three departments, in which multiple majors are already possible: (1) Art, Art History, and Visual Studies; (2) Classical Studies, and (3) Romance Studies. At least half the courses taken to satisfy a minor must be taken at Duke although individual departments may require that a greater proportion be taken at Duke.

**Certificate Programs.** A certificate program is a course of study that affords a distinctive, usually interdisciplinary, approach to a subject that is not available within any single academic unit. All certificate programs consist of at least six courses, four of which are at the 100-level or above, including an introductory and a capstone course. Eligible undergraduates electing to satisfy the requirements of a certificate program may use for that purpose no more than two courses that are also used to satisfy the requirements of any major, minor, or other certificate program; individual programs may prohibit such double counting or restrict it to one course. At least half the courses taken to satisfy a certificate must be taken at Duke although individual programs may require that a greater proportion be taken at Duke.

Certificate programs are available in: Children in Contemporary Society; Documentary Studies; Early Childhood Education Studies; Energy and the Environment; Film/Video/Digital; Genome Sciences and Policy; Global Health; Health Policy; Human Development; Information Science and Information Studies; Islamic Studies; Jewish Studies; Latin American Studies; Markets and Management Studies; Marine Science and Conservation Leadership; Modeling Biological Systems; Neuroscience; Policy Journalism and Media Studies; Politics, Philosophy and Economics; Study of Ethics; and Study of Sexualities. Fuller descriptions of these certificate programs appear in the chapter “Courses and Academic Programs.”

**Restrictions on Majors, Minors, Certificates.** A student must declare one major and may declare a second (although not a third) major. The combined number of majors, minors, and certificate programs may not exceed three. Thus, a student may declare as a maximum: two majors and either a minor or a certificate program; a major and two minors; a major and two certificate programs; or a major, a minor, and a certificate program.

**PROGRAM II**

**Nature and Purpose.** Students in Trinity College who believe that their intellectual interests and talents would be better served outside the regular curriculum options under Program I are encouraged to consider Program II. Students admitted into Program II follow individualized degree programs to explore a topic, question, or theme not available as a course of study within Program I. As degree candidates in Program II, students separate themselves from the requirements and options of Program I including the requirement for a major and the options of multiple majors and minors.

Program II typically best serves the needs of students who find that their intellectual interests cross departmental boundaries or who perceive areas of learning in clusters other than those of the current departmental units of the university. Program II graduates have gone on to graduate and professional schools around the country and to satisfying positions in many areas of employment. They have won important awards, including Rhodes and Fulbright scholarships, and have received national recognition for career success. Among the many topics for Program II have
been architectural design, bioethics, dramatic literacy, the epic in music and literature, planetary and evolutionary biology, and U.S. national security. Full information is available on the Program II Web site: http://www.aas.duke.edu/trinity/program2.

**Admission.** If interested in Program II, students should first attend an information session, then confer with faculty or directors of undergraduate studies in the departments closest to their interests, and with the academic dean for Program II. Students will select a faculty advisor in one of the departments or programs of Trinity College; with approval of the Director of Undergraduate Studies, that department or program will become the sponsor for the student. Application to Program II requires students to propose a topic, question, or theme for the degree program and to plan a special curriculum adapted to their individual interests and talents. The student and faculty advisor together assess the student's background, interests, and ambitions and evaluate the resources at the university, or outside it, to support those ambitions.

The curricular program proposed by a Program II candidate must address the student's specific interests. It must also offer a coherent plan for learning rather than a sampler of interesting courses and should incorporate the depth and breadth of study expected of a liberal education in Trinity College. Programs may be proposed for either the Bachelor of Arts or the Bachelor of Science degree; in the latter case, the sponsoring department must offer a Program I major within the B.S. degree option. The program must be approved by the sponsoring department or program and also by the Committee on Program II of the Faculty Council of Arts and Sciences.

Upon endorsement by the Program II Committee, the program becomes an obligation assumed by the student. Until formally accepted into Program II, a student should register for courses to satisfy the curricular requirements for Program I. Students who withdraw from Program II for any reason assume all requirements of Program I. Students will be accepted into Program II only after their first semester at Duke; they are ineligible for admission after the midpoint of their junior year. Further information may be obtained from the Academic Advising Center and from the office of the academic dean responsible for Program II.

**General Requirements:** Apart from the requirements arising from the approved plan of work, a Program II student must satisfy certain general requirements to satisfy the requirements for the degree: thirty-four semester-course credits for graduation; curricular breadth; the regulations on military science, house, professional school, and physical activity and dance courses; and residence, although the regulation relating to the last eight courses may be adjusted to suit the student's approved plan of work. Graduation with distinction is available for qualified students in Program II. See the section on honors on page 62.

**COMBINATION PROGRAMS OF TRINITY COLLEGE AND DUKE PROFESSIONAL SCHOOLS**

A student interested in attending a Duke professional school (environment or law) may, upon meeting certain requirements, combine the senior year in Trinity College of Arts and Sciences with the first year in the professional school. To qualify the student must (1) successfully complete twenty-six semester courses in Trinity College; (2) fulfill all degree requirements in Trinity College except for eight elective courses; (3) obtain the approval of the appropriate preprofessional advisor and academic dean in Trinity College; and (4) be admitted to the professional school. If the student's application to the professional school is accepted, the student takes a leave of absence from Trinity College in order to transfer to the professional school for the fourth year and begins work on the professional degree. Upon successful completion of the work in the first year of the professional school, the baccalaureate degree is awarded to the student. The undergraduate record notes the student's enrollment in the combination program, the name of the professional school, the date of graduation from Duke.
Trinity College, and the degree awarded, but it does not include courses taken in the professional school. Counseling and additional information are available from the preprofessional advisors in Trinity College: Dean Mary Nijhout (environment) and Dean Gerald Wilson (law).

**PREPARATION FOR GRADUATE AND PROFESSIONAL SCHOOLS**

Students planning to enter a graduate or professional school should consult appropriate Web sites and published information from the relevant advising offices (i.e., Prelaw Advising Center, Prebusiness Advising Office, Pregraduate School Advising Office, Health Professions Advising Center) for general information and guidance. For specific information regarding courses and curriculum choices, students should seek input from their faculty advisors and pregraduate and preprofessional advisors where appropriate. Information specific to particular graduate and professional schools can be obtained from the Web site of each school. Graduate and professional schools require special tests for students seeking admission. Information on the tests can be obtained from the appropriate preprofessional school or pregraduate school advisor in Trinity College of Arts and Sciences.

**Graduate Schools of Arts and Sciences.** Students interested in obtaining a master of science, master of arts, or doctor of philosophy degree should discuss their plans as early as possible with faculty in the proposed field of advanced study and refer to the pregraduate advisor’s Web site. As undergraduates, they should become involved in research which may involve laboratory work, advanced seminars, or independent study. Many graduate schools require a reading knowledge of a foreign language. Information on this and other requirements is available in the bulletins of specific graduate programs and Web sites. It may also be included in the “Handbook for Majors” for the major department. A research mentor, a faculty advisor, and the Ph.D. advisor in the major department are the best resources for advice about graduate school in the arts and sciences. General advice may be sought from the advisor for pre-graduate study, 011 Allen Building.

**Graduate Schools of Engineering.** Students interested in graduate work in engineering should consult the associate dean of the Pratt School of Engineering or the director of graduate studies in one of the engineering departments. Most engineering graduate schools require that a candidate have the equivalent of a Bachelor of Science in Engineering degree; however, students in the natural and social sciences may obtain conditional admission if they have a sufficient background in mathematics.

**Graduate Schools of Business.** Students seeking information about graduate schools of business should consult the advisor in Trinity College. In preparing for graduate business school, students should gain a good liberal arts background, choosing courses that will help them develop communication skills, analytical skills, and an understanding of human nature. Students have often chosen such courses as Computer Science 1, Economics 51 or 55, Economics 182, and Mathematics 31 as those which develop analytical skills. For further information concerning undergraduate preparation, see the Prebusiness Handbook for Duke Seniors and Alumni and other resource materials are available in the Prebusiness Advising Office, 02 Allen Building.

**Medical and Dental Schools.** Students planning to enter schools of medicine and dentistry can prepare for admission by completing any of the regular departmental majors in Program I or by completing Program II, and by taking those courses required by the professional schools of their choice. Virtually all medical schools and most schools of dentistry require the same basic group of college premedical courses—a year of biology, a year each of inorganic and organic chemistry, and a year of general physics. In addition, many schools require a year of English and courses in the humanities or social sciences. About a fifth of all medical schools require a year of college mathematics and some specify calculus, statistics, or computer science. For a complete listing of these and any additional course requirements set by each school, consult Medical School Admissions Requirements, published by the Association of American Medical Colleges or Official Guide to Dental
Schools, published by the American Dental Education Association. These and similar resources for schools of optometry and veterinary medicine are located in the Health Professions Advising Office. Students should discuss their programs of study with their major advisors, academic deans, and with the advisor for the health professions.

Graduate Programs in the Health Professions. Students interested in careers as physical therapists, health administrators, or others of the allied health professions should prepare with course work in the natural sciences and behavioral sciences within a liberal arts curriculum. Up-to-date information on allied health professions and programs is best accessed through the Internet. The health professions advisor is available to meet with students interested in allied health professions.

Law Schools. Students who plan to prepare for law school and a career in law should seek breadth in their undergraduate course program with specialization in one or more areas. They may choose virtually any field for their major work. Though no specific courses are required, prelaw students have often chosen from among the following: Economics 51D, 182; English 117A; History 126D, 177A; Philosophy 48; Political Science 91, 127, 177-178, 207S; Public Policy Studies 55D; Sociology 10D.

For a fuller discussion of undergraduate preparation for the study of law, students should refer to the Duke Prelaw Handbook or the Prelaw Handbook published by the Association of American Law Schools and the Law School Admission Council, or consult the prelaw advisor in the college.

Theological Schools and Religious Work. Students contemplating theological study should correspond with appropriate schools. Students should also confer with the authorities of their respective religious judicatories to determine requirements for a successful application to the school of their choice. Generally speaking, appropriate preparation for theological study could include the following subjects: English language and literature; history, including non-Western cultures as well as European and American; philosophy, particularly its history and its methods; natural sciences, both the physical and the life sciences; psychology, sociology, and anthropology; the fine arts and music; biblical and modern languages; religion, both in the Judeo-Christian and in the Near and Far Eastern traditions.

This kind of course work introduces the student to ways of thinking that will be germane to theological study. Some theological schools require various languages for admission. This may include a year of language study at the college level. It may also include biblical language skill, Greek and/or Hebrew. More detailed information about theological education may be obtained from the director of admissions of Duke University Divinity School by calling (919) 660-3436 or toll-free (888) GO-2-DUKE, or at: www.divinity.duke.edu/admissions.
The Edmund T. Pratt Jr. School of Engineering

Duke University offers in the Edmund T. Pratt Jr. School of Engineering programs of study which lead to the degree of Bachelor of Science in Engineering. Five programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; telephone (410) 347-7700. These programs are biomedical engineering, civil engineering, electrical engineering (through 2010 only), electrical and computer engineering, and mechanical engineering. These accredited programs, and special programs of study in interdisciplinary fields, are offered by the Departments of Biomedical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering and Materials Science.

For graduation with a Bachelor of Science in Engineering degree, a student must complete successfully a minimum of thirty-four semester courses. These thirty-four semester courses must include the following:

<table>
<thead>
<tr>
<th>General Requirements(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Writing</strong></td>
</tr>
<tr>
<td>This requirement is met by completing Writing 20</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
</tr>
<tr>
<td>This requirement is met by completing Mathematics 31, 32, 103, 107, and 108.(^2)</td>
</tr>
<tr>
<td><strong>Natural Science</strong></td>
</tr>
<tr>
<td>This requirement is met by completing Chemistry 21L, Physics 61L and 62L, and an elective course in one of the natural science departments which presents fundamental knowledge about nature and its phenomena, preferably including quantitative expression.</td>
</tr>
<tr>
<td><strong>Humanities and Social Sciences</strong></td>
</tr>
<tr>
<td>This requirement is met by completion of five courses selected from at least three of the following four areas of knowledge: Arts, Literatures, and Performance (ALP), Civilizations (CZ), Foreign Languages (FL), and Social Sciences (SS). At least one course must be classified SS. In order to provide depth in the subject matter, at least two of the five courses must be selected from a single department and at least one of those courses must be 100-level or above. This program of courses should reflect a thematic coherence and fulfill an objective appropriate to the engineering profession. Courses selected must be those which present essential subject matter and substance of the discipline. No skill courses can be used to fulfill this requirement.(^3)</td>
</tr>
<tr>
<td><strong>Engineering and Applied Sciences</strong></td>
</tr>
<tr>
<td>This requirement is met by completion of one course from each of four of the following seven areas: digital systems, electrical science, information and computer science, mechanics (solid and fluid), materials science, systems analysis, and thermal science and transfer processes. See departmental requirements, which follow, for any specific courses to be included.</td>
</tr>
<tr>
<td><strong>Digital Computation</strong></td>
</tr>
<tr>
<td>Students are expected to have acquired digital-computer programming capability before their sophomore year. The programming capability may be satisfied by passing Engineering 53L.</td>
</tr>
</tbody>
</table>

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\(^1\) No more than 1 credit in physical education activity and 1 credit in music activity can be used to meet Bachelor of Science in Engineering degree requirements. House courses may not be used to meet BSE requirements.

\(^2\) A minimum of 9 credits in mathematics, natural science, and statistics are required.

\(^3\) Every student must take one of the following physics courses here at Duke: Physics 61, 62, 63, or 143 depending on AP, IPC, and PMC Credit. Courses in mathematics, statistics, and computer science will not meet the elective requirement. A list of disallowed courses is maintained in the dean’s office.

\(^4\) A maximum of 2 advanced placement credits may be used to meet Humanities and Social Sciences requirements for the Bachelor of Science in Engineering degree.
The first year of study in the Pratt School of Engineering is largely common to all engineers, with seven of the eight first year courses being completely transferable between the five accredited engineering majors. The first year curriculum offers:

- a general education in the fundamentals of mathematics, physics and chemistry, on which the science and practice of engineering are based;
- instruction in modern engineering problem solving skills, including the use of digital technology for both computational and laboratory applications;
- an exposure to the range of career opportunities in engineering; and
- the opportunity to explore intellectual opportunities in Trinity College, through satisfaction of the University writing requirement and selection of a humanities and social sciences elective.

Students predisposed toward a particular Pratt major use the eighth course to begin fulfilling degree requirements for that major as indicated below, while undecided students are encouraged to use this eighth course to aid in their subsequent selection of a major. Engineering 10 (Introduction to Engineering), a first-year colloquium in which both disciplinary and multi-disciplinary opportunities in engineering are explored, is also recommended to first year students to aid in this process of intellectual discovery.

The general layout for the curriculum is as follows:

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 31L</td>
<td>1</td>
<td>Mathematics 32L</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry 21L</td>
<td>1</td>
<td>Physics 61L</td>
<td>1</td>
</tr>
<tr>
<td>Writing 20 or Humanities/Social Science Elective</td>
<td>1</td>
<td>Writing 20 or Humanities/Social Science Elective</td>
<td>1</td>
</tr>
<tr>
<td>Engineering 53L</td>
<td>1</td>
<td>Technical Course</td>
<td>1</td>
</tr>
<tr>
<td>Engineering 101</td>
<td>.5</td>
<td>Total</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>4–4.5</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

The above assumes no advanced placement credit. In the event that such credit is granted for one or more of the above courses, substitutions of upper level technical requirements can be made or other curricular interest may be pursued (including freshman Focus programs, or initiation of a Trinity or Pratt double major/minor).

The Pratt First Year Curriculum

The Edmund T. Pratt Jr. School of Engineering
The first year technical course should be selected according to the student’s intended major:

<table>
<thead>
<tr>
<th>Intended Major</th>
<th>Suggested Technical Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering</td>
<td>Chemistry 22L</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>Engineering 25L</td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>Electrical and Computer Engineering 27(^1)</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Engineering 20(^1)</td>
</tr>
<tr>
<td>Undecided</td>
<td>Select from all above</td>
</tr>
</tbody>
</table>

\(^1\) Engineering 20 is required for Mechanical Engineering majors.

After the first year, recommended curricula become more department specific, and are outlined on the following pages for the sophomore through senior years.
Biomedical Engineering Departmental Requirements

All general requirements and departmental requirements comprising the accredited Biomedical Engineering major are incorporated in the following sequence, only one of several possible sequences. To encourage depth in a specific area of Biomedical Engineering, students select two Areas of Biomedical Interest in the Junior year. There are four Areas of Biomedical Interest: (1) Biomaterials and Biomechanics (BB), (2) Imaging and Measurement Systems (IM), (3) Molecular, Cellular and Tissue Engineering (MC), and (4) Electrobiology (EL). Students must take one required class in each of their two selected Areas followed by two electives in one of the selected Areas. All BME elective courses have one or more of Area of Interest designations (BB, IM, MC, EL) or a General (GE) designation. Any BME Class with a GE designation may be used to fulfill the two Biomedical Engineering General Electives. Students are encouraged to consult with their advisors when selecting Areas of Biomedical Interest and electives.

Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 62L</td>
<td>1</td>
<td>Biomedical Engineering 153L</td>
<td>1</td>
</tr>
<tr>
<td>Biology 25L</td>
<td>1</td>
<td>Biomedical Engineering 100L</td>
<td>1</td>
</tr>
<tr>
<td>Engineering 75 or Biomedical Engineering 110</td>
<td>1</td>
<td>Mechanical Engineering 83 or Biomedical Engineering 83</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics 103</td>
<td>1</td>
<td>Mathematics 107</td>
<td>1</td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>1</td>
<td>Social Science or Humanities Elective</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 108</td>
<td>1</td>
<td>Biomedical Engineering Area Core Class I</td>
<td>1</td>
</tr>
<tr>
<td>Electrical and Computer Engineering 54L or Biomedical Engineering 171</td>
<td>1</td>
<td>Biomedical Engineering Area Core Class II</td>
<td>1</td>
</tr>
<tr>
<td>Life Science Elective</td>
<td>1</td>
<td>Statistics 113</td>
<td>1</td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>1</td>
<td>Biomedical Engineering 154L</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering Design</td>
<td>1</td>
<td>Biomedical Engineering General Elective</td>
<td>1</td>
</tr>
<tr>
<td>Biomedical Engineering Area Elective I</td>
<td>1</td>
<td>Biomedical Engineering Area Elective II</td>
<td>1</td>
</tr>
<tr>
<td>Biomedical Engineering General Elective or Social Science or Humanities Elective</td>
<td>1</td>
<td>Biomedical Engineering General Elective</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Select from the following: Biomedical Engineering 201L, 202L, 207, 233.
2 Select from the following: Biomedical Engineering 227L, 236L, 260L, 261L, 262L, 264L.
3 Both Area electives (I and II) must be from the same Area as described in the text above.

Students intending to study abroad should plan to travel in the Fall semester of their Junior year. Pre-med students should consult with their advisor about course planning. These students will need to take Chemistry 151L and 152L, Biology 25L, and a second life science elective by the end of the junior year. This is done by rearranging courses. Options for dual majors in Electrical and Computer Engineering, Civil Engineering, and Mechanical Engineering as well as elective concentrations are available on the department Web site: www.bme.duke.edu.

Civil and Environmental Engineering Departmental Requirements

The program in civil and environmental engineering calls for concentration in one of two areas, either structural engineering and mechanics (S/M) or environmental engineering.
and water resources (E/W). Typically, by the end of the sophomore year, students have chosen the sequence of courses (S/M) or (E/W) that best satisfies their interests; however, because of the number of electives in the program, it is possible to follow both sequences. Either sequence satisfies all of the requirements for the Bachelor of Science in Engineering degree in civil engineering. The following table is a guide only; other alternatives for courses sequencing exist.

### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 103</td>
<td>1</td>
<td>Mathematics 107</td>
<td>1</td>
</tr>
<tr>
<td>Physics 62L</td>
<td>1</td>
<td>Civil Engineering 130L</td>
<td>1</td>
</tr>
<tr>
<td>Engineering 75L</td>
<td>1</td>
<td>Engineering 123L</td>
<td>1</td>
</tr>
<tr>
<td>Civil Engineering 24L or Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Civil Engineering 100</td>
<td>.5</td>
<td>Engineering 150</td>
<td>.5</td>
</tr>
<tr>
<td>Total</td>
<td>4.5</td>
<td>Total</td>
<td>4.5</td>
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### Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 108</td>
<td>1</td>
<td>Statistics 113</td>
<td>1</td>
</tr>
<tr>
<td>Engineering 115</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Civil Engineering 122L</td>
<td>1</td>
<td>Civil Engineering 139L</td>
<td>1</td>
</tr>
<tr>
<td>Civil Engineering Course¹</td>
<td>1</td>
<td>Civil Engineering Course¹</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Total</td>
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<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Engineering Course¹</td>
<td>1</td>
<td>Civil Engineering 192 or 193²</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

¹ Students selecting the S/M sequence should take the following CE courses: [Junior Year: Fall Semester - CE 131L, Spring Semester - CE 133L; Senior Year: Fall Semester - CE 134L]. Students selecting the E/W sequence should take the following CE courses: [Junior Year: Spring Semester - CE 120L; Spring Semester - CE 123L; Senior Year: Fall Semester - CE 124L].

² The S/M sequence culminates in CE 192L (Integrated Structural Design), while the E/W sequence culminates in CE 193L (Integrated Environmental Design).

The regular program of electives shall include: at least one from ECE 27L, ECE 148L, ME 83L, ME 101L, or BME 83L; at least five semester courses in humanities and social sciences; at least one course in the natural sciences; and in addition to specified CE courses, at least one civil engineering elective course at the 100 or 200 level. Allowable natural science courses include but are not limited to Biology 25L, Earth and Ocean Sciences 11, Earth and Ocean Sciences 12, and Physics 55. Students planning to attend graduate school are strongly advised to take at least one additional civil engineering elective (making two total), with one of these at the 200 level.

**Electrical and Computer Engineering Departmental Requirements**

The general Pratt School of Engineering requirements and Electrical and Computer Engineering departmental requirements comprising the accredited electrical and computer...
The Edmund T. Pratt Jr. School of Engineering

Electrical and Computer Engineering Major

Sophomore Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Courses</th>
<th>Spring Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICS 62L, Electricity, Magnetism, and Optics</td>
<td>1</td>
<td>ECE 54L, Signals and Systems</td>
<td>1</td>
</tr>
<tr>
<td>MATH 103, Intermediate Calculus</td>
<td>1</td>
<td>ECE 51L, Microelectronic Devices and Circuits</td>
<td>1</td>
</tr>
<tr>
<td>ECE 52L, Introduction to Digital Systems</td>
<td>1</td>
<td>BIOLOGY 25L, Principles of Biology</td>
<td>1</td>
</tr>
<tr>
<td>COMPSCI 100E</td>
<td>1</td>
<td>MATH 107, Linear Algebra and Differential Equations</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>SS-H 2</td>
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<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Courses</th>
<th>Spring Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE Concentration Elective 1</td>
<td>1</td>
<td>ECE Elective</td>
<td>1</td>
</tr>
<tr>
<td>ECE 53L, Electromagnetics</td>
<td>1</td>
<td>STA 113 or Math 135 or ECE 255</td>
<td>1</td>
</tr>
<tr>
<td>MATH 108, Ordinary and Partial Differential Equations</td>
<td>1</td>
<td>ECE Concentration Elective 2</td>
<td>1</td>
</tr>
<tr>
<td>SS-H 3</td>
<td>1</td>
<td>SS-H 4</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
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<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Courses</th>
<th>Spring Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE Concentration Elective 3</td>
<td>1</td>
<td>ECE Concentration Elective 4</td>
<td>1</td>
</tr>
<tr>
<td>ECE Elective/ECE Design Elective</td>
<td>1</td>
<td>ECE Design Elective/ECE Elective</td>
<td>1</td>
</tr>
<tr>
<td>SS-H 5</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td>Elective</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

Note for electrical and computer engineering majors: the selection of approved electives should take into account a departmental requirement that a student must have accumulated by graduation time 12 electrical and computer engineering courses, including an engineering design elective to be taken in the junior or senior year of the program. This course must have as a prerequisite at least one course in the discipline; currently, Electrical and Computer Engineering 123, 135, 154, 164, 251, 261, and 275 are approved.

1 Electrical and Computer Engineering concentration electives to be selected from the following areas: signal processing, communications and control systems; electromagnetic fields; solid-state devices and integrated circuits; digital systems; photonics. Electrical and Computer Engineering concentration electives must be selected from at least two areas, and at least two courses must be from the same area.
Mechanical Engineering and Materials Science Departmental Requirements

The general requirements and departmental requirements comprising the accredited mechanical engineering major are all incorporated in the following program.

### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering 75L</td>
<td>1</td>
<td>Engineering 123L</td>
<td>1</td>
</tr>
<tr>
<td>Physics 62L</td>
<td>1</td>
<td>Elective(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics 103</td>
<td>1</td>
<td>Mathematics 107</td>
<td>1</td>
</tr>
<tr>
<td>Elective(^1)</td>
<td>1</td>
<td>Engineering 119L</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

### Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering 125L</td>
<td>1</td>
<td>Mechanical Engineering 83L or Elective(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Mechanical Engineering 101L</td>
<td>1</td>
<td>Mechanical Engineering 126L</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics 108</td>
<td>1</td>
<td>Natural Science Elective(^2)</td>
<td>1</td>
</tr>
<tr>
<td>Elective(^1) or Mechanical Engineering 83L</td>
<td>1</td>
<td>Mechanical Engineering 131</td>
<td>1</td>
</tr>
<tr>
<td>Elective(^1)</td>
<td>1</td>
<td>Elective(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>Total</td>
<td>5</td>
</tr>
</tbody>
</table>

### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Courses</th>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering 141L</td>
<td>1</td>
<td>Mechanical Engineering 160L</td>
<td>1</td>
</tr>
<tr>
<td>Mechanical Engineering 150L</td>
<td>1</td>
<td>Mechanical Engineering Elective(^3)</td>
<td>1</td>
</tr>
<tr>
<td>Mechanical Engineering Elective(^3)</td>
<td>1</td>
<td>Elective(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Elective(^1)</td>
<td>1</td>
<td>Elective(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Part of a program of approved electives planned with the student’s faculty advisor to suit individual interests and abilities. Five of these nine electives must be selected to meet the humanities and social sciences requirements of the Pratt School of Engineering. Also, three of the nine electives must be 100 level or higher, with the exception that engineering courses below the 100 level taken during the freshman or sophomore years may substitute for two of these 100-level electives. ROTC courses cannot be counted toward the 100-level requirement.

2 A list of disallowed courses is maintained in the dean’s office.

3 Restricted to 100-level or higher.

**Declaration of Major.** A student is urged to declare a major before registration for the first semester of the sophomore year, but is required to do so by the time of registration for the first semester of the junior year. Declaration of major is accomplished by completing a form available in the Office of the Dean of Engineering.

**Double Major.** If an engineering student completes simultaneously the requirements for a departmental major in arts and sciences and the requirements for a Bachelor of Science in Engineering degree, or satisfies simultaneously the requirements for two engineering majors, the official record will indicate this fact. However, the director of undergraduate studies for the second major must certify that the departmental major requirements have been met. The student must initiate the procedure, either through the associate dean of the Pratt School of Engineering or through the director of undergraduate studies in the second department. The completion of the requirements for the major in this department must be confirmed no later than the time of registration for the final semester. Courses which are common to both majors shall be counted toward satisfying the requirements of both majors.

**IDEAS.** These interdisciplinary programs in engineering and applied science, leading to the Bachelor of Science in Engineering degree, provide opportunities for students to es-
establish special majors in interdisciplinary fields such as computer engineering, environmental engineering, and materials science. Programs with a broad foundation in the engineering sciences also may be developed under this program by those who intend to enter nonengineering professions. Although not individually accredited, these programs satisfy the national engineering accreditation criteria.

Any student, in consultation with the advisor or another faculty member, may propose a unique combination of courses designed to meet particular career objectives. A proposal must be submitted to the associate dean of the Pratt School of Engineering and the Engineering Faculty Council for approval; it may be submitted as early as the second semester of the freshman year and must be submitted before the beginning of the senior year. The proposal must include a letter stating the student's reasons for pursuing the suggested program of study.

**Certificate Program in Aerospace Engineering.** The objective of this multi-disciplinary program is to educate students in the engineering principles related to the conceptualization, design, analysis, and performance of aerospace vehicles and systems. This certificate program is available only to students enrolled in the Pratt School of Engineering. Specific program requirements may be obtained from the Mechanical Engineering and Materials Science Web site, from the Director of Undergraduate Studies of that department, or from the Office of the Dean of Engineering.

**Certificate Program in Architectural Engineering.** The objective of this interdisciplinary program is to provide students with an understanding of the relationships between the design elements of buildings and construction processes. This certificate program is available only to students enrolled in the Pratt School of Engineering. Specific program requirements may be obtained from the Civil and Environmental Engineering Web site, from the Director of Undergraduate Studies of that department, or from the Office of the Dean of Engineering.

**Certificate Program in Energy and the Environment.** The objective of this multi-disciplinary program is to provide students with an understanding of the breadth of the issues that confront our society in its need for clean, affordable, and reliable energy. Administered jointly by the Pratt School of Engineering and the Nicholas School of the Environment and Earth Sciences, the certificate provides students with an understanding of the three key disciplines in the study of energy and the environment: markets and policy, environmental impacts, and energy resources and technology. The certificate program culminates in a multidisciplinary capstone project course, teaming engineers with non-engineers to tackle real world energy problems. Specific program requirements may be obtained from the Director of Undergraduate Studies in Earth and Ocean Sciences, the DUS in Mechanical Engineering and Materials Science, the DUS in Civil and Environmental Engineering, or from the Office of the Pratt School of Engineering.

**International Honors Program.** The International Honors Program is a certificate program consisting of six to eight semester courses, depending on the foreign language level proficiency of the student. All of the IHP course requirements may, with sufficiently advanced planning, fulfill humanities and social sciences or approved elective requirements which are encompassed in the schools accredited engineering programs. Early planning and advising are essential to fulfilling all IHP requirements as part of the baccalaureate degree program. Specific program requirements and an application may be obtained in the office of the dean of engineering.

**Bachelor of Science in Engineering/Master of Science Program.** This program provides students with an opportunity to plan a coordinated five-year program of studies in the Pratt School of Engineering leading to both the Bachelor of Science in Engineering and Master of Science degrees. Application for admission to this integrated program may be made during the senior year. Provisional admission to the Graduate School may be granted when the student enrolls for the semester during which the Bachelor of Science in Engineering de-
gree requirements will be completed. Graduate level courses during this period which are in excess of Bachelor of Science in Engineering requirements may be credited toward fulfillment of the Master of Science degree requirements.

Master of Engineering Management. This program offers engineering students exposure to both business and law as well as advanced engineering. Open to students after completion of the accredited bachelor’s degree in engineering, it requires completion of an engineering internship, four graduate level engineering courses, three business courses, and one law course. Specific program requirements and application forms may be obtained from the Master of Engineering Management program office in The Wilkinson Center for Engineering Management, 3120 Fitzpatrick Center (CIEMAS).

Residence Requirements. At least seventeen semester courses must be completed satisfactorily at Duke. This must include the work of the final two semesters, with the following exceptions: the student who has completed more than four full semesters of work at Duke may take the last two courses elsewhere; others may take the last course elsewhere. The courses taken elsewhere must be approved in advance by the students major advisor and academic dean.

Pass/Fail Grading Option. With the consent of the instructor and the faculty advisor, an engineering student may choose to be graded on a pass/fail basis in up to four unrestricted electives or social sciences-humanities electives within the thirty-four-course program. A student may take no more than one course on a pass/fail basis each semester.

Repetition of Courses. An engineering student who has earned a grade of D-, D, or D+ in a required mathematics, science, or a required engineering course may, with permission of his or her advisor, director of undergraduate studies, and academic dean, repeat the course. Both grades will remain on the student’s record. Only one credit may be counted toward satisfying continuation requirements and toward fulfilling graduation requirements.

Continuation Requirements. A student must achieve a satisfactory record of academic performance each semester and make satisfactory progress toward graduation to remain enrolled in the university. A student must pass at least three courses in each semester, except for the first semester of the freshman year, in which at least two courses must be passed.

A student who fails to meet this continuation requirement must leave the university for at least two semesters. A complete summer session may be counted as a semester. Following application for readmission, return must be approved by the dean and the director of undergraduate studies in the student’s major department. If the student thereafter fails to pass three courses in a semester, permanent dismissal from the university usually results. A student who enrolls in more than four courses in a given semester and fails two or more of them will not be permitted to enroll for more than four courses in the following semester without approval of the dean. In addition, a student may be dismissed temporarily or permanently for failing to make satisfactory progress toward graduation, including satisfactory progress toward fulfillment of curricular requirements within ten semesters.

The term satisfactory progress shall be defined also by the following schedule:

1. To begin enrollment in the second year, a student must have passed 6 s.c. at Duke and earned P, C-, or better in 4 s.c.
2. To begin enrollment in the third year, a student must have passed 13 s.c. at Duke and earned P, C-, or better in 11 s.c.
3. To begin enrollment in the fourth year, a student must have passed 20 s.c. at Duke and earned P, C-, or better in 18 s.c.
4. To begin enrollment in the fifth year, a student must have passed 27 s.c. at Duke and earned P, C-, or better in 25 s.c.

In the Summer Session: to maintain enrollment at Duke a student may not fail more than one full course during that summer. For purposes of continuation, incomplete work is con-
sidered failure to achieve a satisfactory performance in that course. Therefore, when eligibil-
ity to continue from the summer session to the fall is in question, incomplete courses must be 
satisfactorily completed in time for a passing grade to be submitted to the Office of the Uni-
versity Registrar no later than the weekday preceding the first day of fall classes.

Grade Requirement for Graduation. Of the thirty-four semester courses which fulfill 
the specified categories in the Bachelor of Science in Engineering degree requirements, thirty-
two or their equivalent in number must be passed with grades of $P$, $C-$, or better.
Entrance Credit and Placement

Scores on the tests discussed below and documented previous educational experience are the criteria used to determine a student's qualifications for certain advanced courses. In addition, a limited amount of elective course credit may be awarded in Trinity College on the basis of pre-college examination and/or credits earned of the following three types: advanced placement (AP), international placement credit (IPC), and pre-matriculation credit. Trinity College will record on students’ permanent Duke record courses of these three types completed prior to their matriculation at Duke. The three types of pre-college work are regarded as equivalent and may be used for placement into higher-level course work and to satisfy departmental major and minor requirements at Duke to the extent allowed by the individual departments. Additionally, Trinity College students may be granted up to two elective course credits towards the degree requirement of 34 course credits for any combination of AP, IPC, or pre-matriculation credit. Up to six additional credits may be awarded for acceleration toward the degree. Acceleration is defined as completing the requirements for the bachelor’s degree one or two semesters earlier than the original expected graduation date. Specifically, the two elective as well as up to two acceleration credits may be included in the graduation total for students graduating in seven consecutive semesters. The two elective credits, as well as up to six acceleration credits, may be included in the graduation total for students graduating in six consecutive semesters. Students may not use acceleration credits in order to compensate for time taken away from their studies. Students wishing to graduate early must complete an early graduation form, available from their academic dean, by the end of the fifth semester of enrollment. AP, IPC, and pre-matriculation credits may not be used to satisfy general education requirements—the Areas of Knowledge or the Modes of Inquiry.

The Pratt School of Engineering evaluates AP and IPC credit as Trinity College does, but awards transfer credit to qualified students for college-level course work completed prior to matriculation with a grade of at least B-. These courses may be used to satisfy distribution requirements toward the B.S.E degree. The criteria for evaluating such work are the same as in Trinity College (see the section on work taken during high school).

College Board Advanced Placement Program (AP) Examinations. A score of 4 or 5 on College Board Advanced Placement Program Examinations, taken prior to matriculation in college, is the basis for consideration of placement in advanced courses in art, art history, studio art, biology, chemistry, computer science, economics, English, environmental science, French, German, history, Japanese, Latin, mathematics, music, physics, political science, psychology, Spanish, and statistics. The Department of Mathematics will also consider a score of 3 for placement beyond the introductory course. The record of a student presenting such a score and desiring to continue in the same subject at Duke will be evaluated for placement in an advanced course. Departmental policies regarding advanced placement may vary. AP scores of 4 or 5 in German, Japanese, Latin, French literature, and Spanish literature may result in placement in courses at the 100 level; an AP score of 5 in French or Spanish language may result in placement in courses at the 100 level. Approval of the director of undergraduate studies or supervisor of first-year instruction in the appropriate department is required before final placement is made. Scores should be submitted directly
to the Office of the University Registrar. The expectation is that they will be sent prior to matriculation or at least by the end of the first year. See the following information concerning policies in the Department of Physics:

**Advanced Placement in Physics.** Neither credit nor advanced placement is given for a score below 5 on the Advanced Placement (AP) Physics-B exam. Exceptional Trinity College students presenting a score of 5 on the AP Physics-B exam may be placed out of Physics 53 with consultation of the Physics director of undergraduate studies, although no credit will be granted for these courses. This option is not available to students in the Pratt School of Engineering.

Entering students with a score of 4 or 5 on the AP Physics-C Mechanics exam will receive credit for Physics 61; students with a score of 4 or 5 on the AP Physics-C Electricity and Magnetism exam will receive credit for Physics 62. This policy applies to students entering either the Pratt School of Engineering or Trinity College.

For more details about AP course credits and international AP course credits in physics, see [www.phy.duke.edu/undergraduate/elsewhere.php](http://www.phy.duke.edu/undergraduate/elsewhere.php).

AP courses completed with a score of 4 or 5 will be recorded on a student's permanent Duke record. Students may use all of these courses for placement into higher level courses and to satisfy departmental major and minor requirements at Duke to the extent allowed by individual departments. Enrollment in a course for which AP credit has been given will cause the AP credit to be forfeited. In the Pratt School of Engineering, AP courses count toward the general requirements and the student is required to take one physics course here at Duke. If awarded AP credit for Physics 61 and 62, the student must take Physics 63; if awarded IB or A-level credits for Physics 61 and 62, the student must take Physics 143. In Trinity College, AP courses do not count toward the general education requirements, i.e., the Areas of Knowledge or the Modes of Inquiry.

**International Placement Credit (IPC).** Duke University recognizes the International Baccalaureate Program; the French Baccalaureate; the British, Hong Kong, or Singapore A-Level Examinations; the German Abitur; the Swiss Federal Maturity Certificate; the All India Senior School Certificate Examination; and the Indian School Certificate examination. Scores acceptable for consideration are determined by the faculty and evaluated by the university registrar. Course equivalents for these programs may be recorded on a student's permanent Duke record for placement and credit according to the same policy governing use of AP and pre-matriculation credits (see above). Similarly, these credits do not satisfy the general education requirements and, thus, may not be used for the Areas of Knowledge or the Modes of Inquiry; any combination of two IPC, AP, or pre-matriculation credits may be used toward the 34 required for graduation. Additional IPC, AP and pre-matriculation credits may be used to accelerate. In the Pratt School of Engineering, these courses may be used to satisfy distribution requirements toward the B.S.E degree.

**Pre-Matriculation Credit.** First-year Duke students may submit for evaluation college courses taken at another American college or university after commencement of the student’s junior year of high school. (For details concerning transferring this work, see the section on “Work Taken During High School” on page 48.) No pre-matriculation credit will be awarded for college course work completed on a study abroad program undertaken prior to matriculation at Duke. In Trinity College, pre-matriculation credits awarded for such work may be used as electives and, thus, may not be used to satisfy the general education requirements—the Areas of Knowledge or the Modes of Inquiry. Any combination of two pre-matriculation, IPC, or AP credits may be used toward the 34 required for graduation. Additional IPC, AP and pre-matriculation credits may be used to accelerate. In the Pratt School of Engineering, these courses may be used to satisfy distribution requirements toward the B.S.E degree.

**College Board Tests.** Scores on College Board Tests are the basic criteria for placement in French, German, Spanish (101 and beyond), Latin, and mathematics. Course credit is not
given for courses bypassed. The following tables will assist students in making reasonable course selections in the subjects indicated.

<table>
<thead>
<tr>
<th>Subject</th>
<th>College Board Achievement Score</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>French1, 2</td>
<td>240-410</td>
<td>French 1 or 14</td>
</tr>
<tr>
<td></td>
<td>420-480</td>
<td>French 2</td>
</tr>
<tr>
<td></td>
<td>490-580</td>
<td>French 15 or 63</td>
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<tr>
<td></td>
<td>590-630</td>
<td>French 76</td>
</tr>
<tr>
<td></td>
<td>640-plus</td>
<td>French 100-level course</td>
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<tr>
<td>German1, 4</td>
<td>200-410</td>
<td>German 1 or 14</td>
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<tr>
<td></td>
<td>420-480</td>
<td>German 2</td>
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<tr>
<td></td>
<td>490-580</td>
<td>German 65</td>
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<td></td>
<td>590-620</td>
<td>German 66</td>
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<td></td>
<td>630-650</td>
<td>German 117</td>
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<tr>
<td></td>
<td>660-plus</td>
<td>German 118 and beyond</td>
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<tr>
<td>Spanish1, 5</td>
<td>below 200</td>
<td>Spanish 1 or 14</td>
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<tr>
<td></td>
<td>200-370</td>
<td>Spanish 13</td>
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<tr>
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<td></td>
<td>460-580</td>
<td>Spanish 15 or 63</td>
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<td>Spanish 76</td>
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<tr>
<td></td>
<td>660-plus</td>
<td>Spanish 100-level course</td>
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<td>Latin1, 6</td>
<td>200-520</td>
<td>Latin 1</td>
</tr>
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<td>530-630</td>
<td>Latin 63</td>
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<td></td>
<td>640-690</td>
<td>Latin 91</td>
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<td></td>
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<td>Latin 100-level course</td>
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<tr>
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<td>Mathematics 25L</td>
</tr>
<tr>
<td></td>
<td>680-800</td>
<td>Mathematics 31L</td>
</tr>
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1 In these languages students are permitted to drop back one level without loss of credit (e.g., from 100 to 76 or from 76 to 63, in French; from 117 to 66 or from 66 to 65 in German). No credit will be allowed for courses two levels below the achievement score (e.g., students with a score of 640 in French could not receive credit for 63, but could for 76). In no case will credit be given for French 1 or Spanish 1 to students who have completed more than two years of French or Spanish in high school.

2 Students should also check the Self-Placement Guidelines for French at: [http://languages.duke.edu](http://languages.duke.edu).

3 The first semester of a language may not be taken for credit by a student who has completed more than two years of that language in secondary school. In rare cases, an exception may be granted with permission of the director of undergraduate studies in the appropriate department.

4 Students should also check the Self-Placement Guidelines at: [http://www.german.duke.edu/undergrad/selfplacement.html](http://www.german.duke.edu/undergrad/selfplacement.html).

5 Incoming students must take the SAT II before enrolling in a Spanish course.

6 Students should also check the self-placement guidelines at [http://www.duke.edu/web/classics/ugrads/latin-greek.html](http://www.duke.edu/web/classics/ugrads/latin-greek.html).

7 In the absence of an achievement test score, course placement is determined by the SAT score as follows: 670 or below—Math. 25L; 680-800—Math. 31L.

Newly admitted students who wish to continue the study of French, German, Spanish, or Latin begun in secondary school must take a College Board Achievement Test or College Board Advanced Placement (AP) Examination in that language by June of the senior year in secondary school. In Spanish or French, a score of 4 or 5 on the AP literature exam, or a score of 5 on the AP language exam qualifies students to enroll in a 100-level course. Students who plan to take mathematics at Duke are expected to present College Board Scholastic Achievement Tests (SAT), Mathematics Achievement (Level I or Level II), or Advanced
Placement Program (AP, either level AB or level BC) scores. Placement testing in mathematics is not offered during New Student Orientation.

All students who plan to take mathematics during their first semester at Duke, and who do not submit the College Board SAT or Achievement Test or Advanced Placement Program score in mathematics, should refer to the placement guidelines on the Web site of the Department of Mathematics, or consult with the supervisor of first-year instruction in mathematics during New Student Orientation. New students who have been placed in Mathematics 25L or 31L on the basis of College Board SAT, Achievement, or Advanced Placement Examinations but who believe that their background in mathematics justifies a higher placement, should also confer during New Student Orientation with the supervisor of first-year instruction or with the director of undergraduate studies in the Department of Mathematics.

**Placement in Languages Other Than French, German, Spanish, and Latin.** Students who wish to continue in any language other than French, German, Spanish, or Latin should consult with the appropriate director of undergraduate studies. In the case of Russian and Turkish, the department offers a written examination which is used in conjunction with other criteria for placing students at the appropriate level. In the case of Asian and African languages as well, students should consult with the appropriate language coordinators.

**Reading Out of Introductory Courses.** Students demonstrating academic ability may be granted the option of reading out of an introductory or prerequisite course in order to allow them to advance at their own pace to upper-level work. No course credit may be earned by reading out. Reading for a course and auditing are mutually exclusive procedures. Students should consult with the appropriate directors of undergraduate studies who must approve the proposed program of reading. Students may be certified for advanced course work by passing a qualifying examination prepared by the department. When an advanced course is completed, an entry is made on the permanent record that the qualifying examination was passed, but no course credit is awarded.

**Transfer of Work Taken Elsewhere**

**Work Taken During High School.** College-level courses taken elsewhere prior to matriculation at Duke may be considered for pre-matriculation credit provided they meet each of the following criteria: were taken after the commencement of the junior year of high school and yielded a grade of B- or better, not used to meet high school diploma requirements and not included on the high school transcript at any time, taken on the college campus, taken in competition with degree candidates of the college, taught by a regular member of the college faculty, part of the regular curriculum of the college, not taken on a study abroad program completed prior to matriculation at Duke, and not pre-calculus or English composition courses. Formal review of courses meeting these criteria will proceed after an official transcript of all college courses taken and documentation pertaining to these criteria are received by the University Registrar. (See also the section on entrance credit in this chapter for a discussion on the number of pre-matriculation credits that can transfer and how they may be used at Duke.)

**Work Taken After Matriculation at Duke.** After matriculation as a full-time candidate at Duke, a student in Trinity College may receive transfer credit for no more than two courses taken in the United States at another accredited four-year institution, whether in the summer, while withdrawn from the College, or while on leave of absence for personal, medical, or financial reasons. A student in the Pratt School of Engineering is limited to four of these types of transfer courses. In cases that involve transferring study abroad credit, a student in Trinity or Pratt may transfer up to eight credits for a full year, plus two for a summer. In no instance, however, may a student transfer more than ten courses when combining study abroad and the allowable number of domestic transfer courses.
International students who take courses in their home country for transfer will be subject to the same policies and limitations governing domestic credit. No credit will be accepted for course work taken while a Duke student is withdrawn involuntarily.

Only those courses taken in which grades of C- or better have been earned are acceptable for transfer credit; courses taken at other institutions with P/F grading or the equivalent will not be accepted for transfer credit. The semester-course unit of credit awarded at Duke for satisfactorily completed courses cannot be directly equated with semester-hour or quarter-hour credits. Credit equivalency is determined by the university registrar. Courses for which there is no equivalent at Duke may be given an 888 or a 999 number, lower or upper level, respectively. All courses approved for transfer are listed on the student’s permanent record at Duke, but grades earned are not recorded. Once the limit of transferred credit has been reached, no additional transferred work will be displayed on the record or used as a substitute for a previously transferred course. Further information is available from the university registrar.

Courses taken in the United States that, upon evaluation, yield transfer credit at Duke may be given Areas of Knowledge and Modes of Inquiry codes. (The same is true of courses taken abroad.) They could count toward the major, minor, or certificate if approved by the relevant academic unit. For purposes of this regulation, interinstitutional credits (see the section on agreement with neighboring universities) are not considered as work taken at another institution.

At least half of the courses submitted toward fulfillment of a student’s major field must be taken at Duke, but departments may make exceptions to this rule in special circumstances. No credit is given for work completed by correspondence, and credit for not more than two semester courses is allowed for extension courses.

Approval forms for Duke students taking courses at institutions other than Duke may be obtained online or from the offices of the academic deans. Students wishing to transfer credit for study at another accredited college while on leave or during the summer must present a catalog of that college to the appropriate dean and director of undergraduate studies and obtain their approval prior to taking the courses. Students wishing to receive Modes of Inquiry codes for transfer course work must apply for those codes using the Transfer Course Modes of Inquiry Request Form available at: www.aas.duke.edu/trinity/t-reqs/.

Transfer Credit for Students Transferring to Duke. Students transferring from a degree program in another accredited institution may be granted credit for up to 17 semester-course credits. Students will not be awarded more than four course credits for one semester’s work at the institution from which they are transferring credit. Courses accepted for transfer in this circumstance may be given, upon evaluation, Area of Knowledge and Modes of Inquiry codes. They may count toward a major, minor, or certificate program if approved by the relevant academic unit. See the section above for information on the evaluation of courses for transfer and the limitation on transfer courses for the major.

Transfer Credit and the Foreign Language Requirement. The same rules that apply to the transferring of courses to meet other curriculum requirements apply to foreign language courses.

Foreign language courses taken elsewhere and approved for transfer as credit to Duke may be used for language placement. Students who request placement on the basis of non-Duke courses will be required to show their work (including books, syllabus, writing samples, exams) to the director of undergraduate studies in the department of that language, and/or to pass an in-house proficiency exam appropriate to the level.

Academic Advising

Students and their advisors confer when necessary, but they should confer at least once before every registration period to review goals, plans for achieving them, and any problems encountered or anticipated. Before declaring a major in Trinity College, students confer
with the premajor advisor and the academic dean for premajor students. Upon declaring a major, the student is assigned a faculty advisor; the academic dean for that division is also available for consultation. In the Pratt School of Engineering, the advisor's approval is necessary for registration and all course changes. Much good advising is informal and occurs in conversation with members of the faculty. Students have the responsibility to understand and meet the requirements for the curriculum under which they are studying and should seek advice as appropriate.

**Registration**

Students are expected to register at specified times for each successive term. Prior to registration each student receives special instructions and registration materials via ACES. Students prepare a course program via ACES, and discuss it at an appointed time with their advisors. In the Pratt School of Engineering, the schedule must be approved by the advisor.

Students who expect to obtain certification to teach in secondary and elementary schools should consult an advisor in the education program prior to each registration period to ensure that they are meeting requirements for state certification and that they will have places reserved for them in the student teaching program.

Those who register late are subject to a $50 late registration fee. In the case of students enrolled in Continuing Education, late fees are assessed after the first day of classes. Students who fail to register for the fall or spring semester are administratively withdrawn and must apply for readmission if they wish to return. Those students who have not paid any fees owed to or fines imposed by the university (such as laboratory fees, library fines, and parking fines) by the date specified for registration for the following term will not be permitted to register for the following term until such fees and fines have been paid in full, notwithstanding the fact that the student may have paid in full the tuition for the following term.

Students planning to register for a course under the interinstitutional agreement must have the course approved by the appropriate director of undergraduate studies and their academic dean. Further information about registration procedures may be obtained from the Office of the University Registrar, and at its Web site, [www.registrar.duke.edu](http://www.registrar.duke.edu). See the chapter "Special Programs" for information regarding the reciprocal agreement with neighboring universities.

**Duke Identification Card and Term Enrollment**. Undergraduate students are issued an identification card (DukeCard) which they should carry at all times. The card is a means of identification for library privileges and provides access to many university facilities, functions, and services available to currently enrolled students. Students are expected to present their card on request to any university official or employee. The card is not transferable, and fraudulent use may result in loss of student privileges or suspension. Loss of the card should be reported immediately to the DukeCard Office at (919) 684-5800. A replacement fee will be charged for lost or stolen cards. Official enrollment is required for admission to any class.

**Concurrent Enrollment**. A student enrolled at Duke may not enroll concurrently in any other school or college. See, however, the statement regarding the reciprocal agreement with the University of North Carolina at Chapel Hill, North Carolina Central University in Durham, North Carolina State University at Raleigh, the University of North Carolina at Charlotte, and the University of North Carolina at Greensboro.

**Course Changes after Classes Begin in the Fall and Spring Terms**. During the drop/add period changes may be made in course schedules through ACES. Students may drop and add courses during the first week of classes in the fall and spring terms at their own discretion; during the second week of the drop/add period they may drop courses at their own discretion, but a permission number provided by the appropriate instructor or department is required for adding a course. After the drop/add period no course may be added; also, a
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A course may not be changed to or from the pass/fail or audit basis. To withdraw from a course, students must obtain permission from their academic dean; and for reasons of course overload, i.e., more than four semester courses, the academic dean may give permission prior to the final four weeks of classes. The academic dean may also permit students with compelling reasons and in a normal course load to withdraw from a course up to the first day of the final four weeks of classes. After the drop/add period, students permitted to withdraw receive a notification of W on their academic record. Course work discontinued without the dean's permission will result in a grade of F.

When students note errors in their course schedules, they should consult immediately with their academic dean during the schedule correction period that occurs immediately after drop/add ends.

Course Changes for the Summer Terms. Course changes during the summer term are accomplished through ACES. Duke students who are blocked from continuing into a summer term must see their academic dean.

Courses may be added before or during the first three days of the term. After the third day of the term, no course may be added. Prior to the first day of the term, students may drop a course or courses for which they have registered without penalty. During the first three days of the term, students will be charged $150 per course for dropping a course or courses if this results in any reduction in course load for the term. With the permission of the academic dean, students with compelling reasons may withdraw from a course through the twentieth day of a regular term (sixteenth day at the Marine Laboratory); and a notification of W will be recorded on their academic record. Course work discontinued without the approval of the dean will result in a grade of F. (See also the section on withdrawal charges and refunds.)

Accommodations

The Duke University Student Disability Access Office, assists students with disabilities who are enrolled in Trinity College and the Pratt School of Engineering. In order to receive consideration for reasonable accommodations under the Americans with Disabilities Act (ADA), a student must have a physical or mental impairment that substantially limits one or more major life activities such as, but not limited to, hearing, seeing, speaking, breathing, performing manual tasks, walking, caring for oneself, and learning. Substantially limiting refers to an impairment that prevents an individual from performing a major life activity or significantly restricts the condition, manner, or duration under which an average person can perform a major life activity.

Students requesting accommodations under the provisions of the ADA (e.g., academic, accessibility, housing) must contact the director of the Student Disability Access Office at (919) 668-1267, to explore possible coverage. Students with other medical conditions that may require special assistance (e.g., housing, dining) must contact Duke Student Health Service at (919) 684-3367 for further information. Receiving accommodations or special assistance at another college or university does not necessarily qualify an individual for the same accommodations and/or assistance at Duke University. For academic assistance available to all Duke undergraduate students, as well as additional services for students with learning disabilities and attention deficit disorder, please refer to the Academic Resource Center section of this bulletin.

Course Load and Eligibility for Courses

Students are reminded that it is their responsibility to be certain that their course load conforms with academic requirements. In fall and spring terms, students must enroll in at least four course credits. Seniors may request an underload, including part-time status, for the last semester (see the section on Full-Time and Part-Time Degree Status in this chapter).
Students should take note that two additional semester credits are needed in order to meet the thirty-four (34) semester-course requirement for graduation. During the drop/add period, students in Trinity College may ordinarily register for up to five and a half course credits. Students on academic probation may register for no more than four course credits, and the academic dean may also limit the course load for a student who has previously received an academic warning. Registration for six course credits requires the approval of their academic dean. During the same period, students in the Pratt School of Engineering may register for up to five course credits, and up to five and a half or six course credits with the approval of their dean. In no case will students be allowed to register for more than six credits. Students must be enrolled in at least three course credits per semester in order to be considered in full-time status for loan deferment and athletic eligibility purposes.

The maximum course program for one term of the summer session is two courses, one of which may be a laboratory course. Students in the Pratt School of Engineering may enroll in two laboratory courses. In addition, a student may enroll in a physical education activity or technique/performance activity course for one-half course credit.

Eligibility for Courses. The rules established by the Graduate School provide that juniors may enroll in a 200-level (senior-graduate) course. Students wishing to enroll in a 200-level course in their sophomore (second) year must secure permission of the instructor of the course and of their academic dean. Juniors and seniors are normally not allowed to enroll in 300-level courses. Under exceptional circumstances, however, permission to do so may be granted, provided the instructor, the director of graduate studies, their academic dean, and the dean of the Graduate School give their signed permission.

Students are responsible for ensuring that they have the stated prerequisites for a course. ACES will enforce the prerequisites for some courses when registration for them is attempted.

In certain subjects, such as the sciences, mathematics, and the foreign languages (particularly at the introductory and intermediate levels), some lower level courses must be taken in sequence because the content presented at one level is necessary for successful work at the next higher level. Given this circumstance, it follows that students who complete a higher level course in a sequence may not subsequently enroll in a lower one in that sequence. Information about course eligibility is often contained in the official description of the course (see the chapter "Courses and Academic Programs"). Students may direct additional questions about course sequencing to their academic dean.

Seniors who, at the beginning of the final term, lack no more than three semester courses toward the fulfillment of the requirements for the Bachelor of Arts or Bachelor of Science degree may enroll in graduate courses, for a maximum course load of five semester courses. Admission to the Graduate School is necessary.

Students may not register for two courses officially listed as meeting at the same time. In Trinity College no course may be repeated for credit or a grade if a C- or higher has been earned previously, except where noted in the course description. Furthermore, a course taken at another institution with a grade of C- or above and not transferred to Duke may not be repeated at Duke. If it is determined such a course has been taken elsewhere and repeated at Duke, the Duke course will be removed from the academic record. A course previously passed, however, may be audited. Physical education activity courses may be repeated, but only one full credit of these courses counts toward graduation.

Students who receive a D-, D, or D+ in any course in Trinity College are allowed to repeat the course only at Duke and with permission of their academic dean. The grade earned in the repeated course as well as the grade earned originally appear on the transcript, the former identified as a repeat; both grades count in the grade point average, but the credit for only one counts toward the required number of courses for continuation and the thirty-four (34) courses required for graduation. Course repeat request forms are available in the offices of the academic deans.
Course Audit

Students who audit a course submit no daily work and take no examinations, but are expected to attend class sessions. They do not receive credit for the course. With the written consent of the instructor, a full-time degree student is allowed to audit one or more courses in addition to the normal program. Students must register for audit courses by submitting a signed permission note from the instructor to the Office of the University Registrar. The prohibition against registering for two courses meeting at the same time applies. After the drop/add period in any term, no student classified as an auditor in a particular course may take the course for credit, and no student taking a course for credit may be reclassified as an auditor. Physical education activity, studio art, applied music, and dance technique/performance courses may not be audited. In the fall or spring term, a part-time degree student may audit courses by payment for each course audited. In a summer term, a student carrying two courses for credit may be given permission to audit, without additional fees, nonlaboratory courses with the above exceptions. A student in a summer term carrying less than a full program for credit may secure permission to audit (above exceptions apply) but is required to pay an audit fee for the course. A student may not repeat for credit any course previously audited.

Courses may be audited by faculty members, staff, alumni, employees and their spouses, as well as spouses of currently enrolled students, and members of the Institute for Learning in Retirement. Formal application is not necessary; written permission from the instructor must be obtained and an approval form must be signed by the director of the Office of Continuing Education. Consult the chapter "Financial Information" for the appropriate fee schedule. Auditors must register on the Friday before classes begin.

Independent Study

Independent study enables a student to pursue for course credit individual interests under the supervision of a faculty member. Independent study is of two types: Independent Study (non-research) and Research Independent Study. Both require (1) approval of the instructor involved as well as the Director of Undergraduate Studies in the relevant department or program; (2) student meetings at least once every two weeks during fall or spring semester and once each week during summer semester; (3) completion of a final product to be completed during the semester for which a student is registered for the course; (4) evaluation by the instructor of the work, including the final product, associated with the independent study.

Courses entitled Independent Study are individual non-research directed study in a field of special interest on a previously approved topic taken under the supervision of a faculty member and resulting in an academic and/or artistic product. Such independent study courses do not bear a Research (R) code and do not satisfy any general education requirements. Courses entitled Research Independent Study are individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Such research independent study courses bear a Research (R) code and satisfy general education Research requirements. One research independent study may be submitted and approved for a Writing (W) code in addition to the R code designation, but no other curriculum code designations are permitted for research independent study courses. Students who wish to request a W code for one research independent study course must take the appropriate form to 011 Allen Building by the end of the semester they are enrolled in the course. The request form is available on T-Reqs: www.aas.duke.edu/trinity/t-reqs/.

Academic Internships

In Trinity College course credit can be earned for internships only when they include as a component an academic course of instruction. Academic internships must be offered under
the auspices of an academic unit in Trinity College. Each student's internship must be sponsored by a departmental/program faculty member and approved by the director of undergraduate studies. Such internships typically draw upon work experience to investigate a research problem from one or more intellectual/disciplinary perspectives. They thus have an experiential component and a formal intellectual component leading to submission of a substantive research paper for evaluation. Academic internships are of two types: 1) academic internships that are required for an existing major and are required in programs designed to meet state teaching certification standards; 2) all other academic internships, which are considered to be electives. Only one course credit from these elective academic internships may count toward the thirty-four (34) course credits required for graduation. Further information about procedural requirements may be obtained from the academic deans.

Submission of Term Paper

Students who wish (under unusual circumstances) to submit a single paper for credit in more than one course must receive prior written permission from each course instructor. The student must indicate the multiple submission on the title page of the paper.

Declaration of Major in Trinity College of Arts and Sciences

All students entering Trinity College enter as undeclared majors and are assigned an academic advisor and academic dean. Before declaring a major in Trinity College, students work with their academic advisors and with other members of the faculty and staff to develop a long-range academic plan which outlines progress and academic goals for the future. The plan should describe the proposed major program, related classroom and outside experiences, and the general pattern of elective courses, as well as the means by which the student will meet established college requirements for graduation. Although students may declare a major as early as the spring of the first undergraduate year, all students must secure formal approval of their long-range plans and declare a major before they will be permitted to register for classes for their fifth undergraduate semester or to study abroad on a semester or year-long program. The long-range plan is available on ACES.

After declaring a major, students are assigned an advisor in the department of the major and an academic dean in that division. Students who, having already declared a major, wish to change it should do so in the Office of the University Registrar. Any changes in majors or minors made after the end of the drop/add period in the senior year must be made through the graduation clearance office in Trinity College.

A student may declare an interdepartmental major in two Trinity College departments or programs that offer a major after receiving the approval of the directors of undergraduate studies of the departments involved. The major must be planned early in the undergraduate career. It must consist of fourteen or more courses, with at least ten at the 100-level or above; the courses must be split evenly between the two departments; at least four of the seven courses required by each department must be taught within the department. While one of the departments must be identified as the department primarily responsible for the advising for the student’s major program, the student must have an advisor in both departments. A student who has not yet declared a major and is interested in an interdepartmental major should consult the Academic Advising Center as part of the process of completing the long-range plan and declaring a major. A student who has already declared a major and is interested in changing to an interdepartmental major should consult the academic dean responsible for students completing an interdepartmental major. Students proposing an interdepartmental major must present a written plan that has the signed approval of the two directors of undergraduate studies to the Academic Advising Center or the academic dean for interdepartmental majors, as noted above; the plan must include a descriptive title and rationale as well as a list of courses that will be taken in both departments. Any subsequent
changes to the course of study must be jointly approved by the directors of undergraduate studies.

A student who wishes to declare a second major should do so in the Office of the University Registrar. Only one undergraduate degree may be earned; however if the student's second major is not offered within the degree to be granted for completion of the first major, a notation of the second major will appear on the transcript. A student may not declare more than two majors. Majors offered within each degree are listed below:

**Bachelor of Arts.** African and African American studies, art history, art history/visual arts (combined), Asian and African languages and literature, biological anthropology and anatomy, biology, Canadian studies (second major only), chemistry, classical civilization, classical languages, computer science, cultural anthropology, dance, earth and ocean sciences, economics, English, environmental sciences and policy, French, French/Italian (combined), French/Spanish (combined), German, history, international comparative studies, Italian, Italian/Spanish (combined), linguistics, literature, mathematics, medieval and Renaissance studies, music, philosophy, physics, political science, psychology, public policy studies, religion, Russian, Slavic and Eurasian Studies, sociology, Spanish, statistical science, theater studies, visual arts, visual studies, and women's studies.

**Bachelor of Science.** Biological anthropology and anatomy, biology, chemistry, computer science, earth and ocean sciences, economics, environmental sciences, mathematics, physics, psychology, and statistical science.

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**Class Attendance, Excuses, and Absences**

Responsibility for class attendance rests with individual students, and since regular and punctual class attendance is expected, students must accept the consequences of failure to attend. Instructors may refer to their academic dean students who are, in their opinion, absent excessively. Dean's excuses are not issued for short-term illnesses; rather, students who miss graded work due to short-term illness must notify instructors according to the Short-Term Illness Notification policy approved by the faculty. Detailed information about the policy and the notification procedure is available at T-Reqs: [http://www.aas.duke.edu/trinity/t-reqs/illness](http://www.aas.duke.edu/trinity/t-reqs/illness), for students in Trinity College or at: [http://www.pratt.duke.edu/students/policies.php#short_term](http://www.pratt.duke.edu/students/policies.php#short_term), for students in the Pratt School of Engineering.

The short-term illness procedure is not in effect during final examinations.

In accordance with faculty policy, students who miss graded assignments for long-term illness, personal or family emergency (known to and approved by the academic dean), or authorized representation of the university off-campus may receive a dean's excuse. Officials in charge of groups representing the university are required to submit the names of students to be excused to the appropriate deans' offices forty-eight hours before the absences are to begin. Students who must miss a graded assignment due to one of the three circumstances noted should see their academic dean. A dean's excuse does not exempt students from completing an assignment; instead, it makes them eligible for considerations based on policy set by the instructor of the course. In courses where a defined number of absences are permitted, students should make judicious use of them by saving them for unavoidable circumstances.

Dean's excuses are not issued for class absences, discussion sections, or laboratories, only for missed work. In case of long-term illness or personal or family problems, the academic dean may find it appropriate to notify instructors of an extended absence.

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**Class Scheduling**

Class times are officially scheduled at registration unless designated "to be arranged" (TBA). After registration begins, no class time may be changed without prior permission of the Chair of the University Schedule Committee. Within-class tests (except for the final)
are to be given at the regular class meeting times. Exceptions are made for block tests that have been approved by the University Schedule Committee.

**Incomplete Course Work**

If, because of illness, emergency, or reasonable cause, a student cannot complete work for a course, the student may request in writing to his or her academic dean the assignment of an I (incomplete) for the course. (Forms are available on T-REQS at [www.aas.duke.edu/trinity/t-reqs](http://www.aas.duke.edu/trinity/t-reqs).) If the request is approved by the instructor in the course and by the student's academic dean, then the student must satisfactorily complete the work by the last class day of the fifth week of the subsequent regular semester (or earlier if there is a question of the student's continuation in school). Professors may also establish earlier deadlines. An I assigned in the fall, spring, or summer terms must be resolved in the succeeding spring or fall term, respectively. If the I is not completed by the deadline, it will convert to an F grade. If a student whose work is incomplete is also absent from the final examination, an X is assigned for the course (see below). A student not enrolled in the university during the semester following receipt of an I or X will have until the end of the fifth week of classes of the next semester (fall or spring) of matriculation to clear the I. Students may not complete work in a course after graduation. Once recorded, a notation of the I will remain permanently on the student's record, even after the final grade is assigned for the course. In addition, an I cancels eligibility for Dean's List and Dean's List with Distinction.

**Final Examinations and Excused Absences**

The times and places of final examinations for the fall and spring terms are officially scheduled by the University Schedule Committee, generally according to the day and hour of the regular course meeting; changes may not be made in the schedule without the approval of the committee. If a final examination is to be given in a course, it will be given at the time scheduled by the University Schedule Committee. Take-home examinations are due at the regularly scheduled hour of an examination, based on the time period of the class. In courses in which final examinations are not scheduled, an exam that substitutes for a final examination may not be given in the last week of classes. Hourly tests may be given in the last week of classes, whether or not a final examination is administered during the exam period. In the summer session, final examinations are held on the last two days of each term as specified in the [Bulletin of Duke University Summer Session](http://www.duke.edu) and may not be scheduled within the last three days before the examination period. Final examinations for short courses are held on the last day of the course.

No later than the end of the first week of classes of the fall and spring term, the instructor is required to announce plans for the final examination exercise. Unless departmental policy stipulates otherwise, the form of the final exercise is determined by the instructor. However, a final written examination may not exceed three hours in length and a final take-home examination may not require more than three hours in the actual writing.

If a student is absent from a final examination, an X is given instead of a final grade unless the student's grade in the class is failing, in which case the instructor may submit an F. The student must present an acceptable explanation for the absence to the appropriate academic dean within forty-eight hours after the scheduled time of the examination. Because end-of-the-semester travel arrangements are not the basis for changing a final examination, students are advised to consult the final examination schedule when making such arrangements. Deferral of a final examination will not be authorized by the academic dean if it is ascertained that the student has a history of excessive absences or failure to complete course work in a timely fashion in the course in question. The X is converted to an F if the academic dean does not approve the absence. If the absence is excused by an academic dean, the student arranges with the dean and the instructor for a make-up examination to be given at the earliest possible time. It should be noted that uncleared grades of X may have
significant ramifications regarding continuation in the university. (See Grading and Grade Requirements below.) An excused X not cleared by the end of the fifth week of the following semester is converted to a F. Once recorded, a notation of the X will remain permanently on the student's record, even after the final grade is assigned for the course. A student not enrolled in the university during that following semester has until the end of the fifth week of the next semester of enrollment to clear the X unless an earlier deadline has been established by the instructor and the academic dean.

**Grading and Grade Requirements**

Final grades on academic work are provided to students via ACES after the examinations at the end of each term. Midterm advisory grade reports for first-year students are issued in the fall and spring, and are provided to students via ACES.

**Passing Grades.** Passing grades are A, exceptional; B, superior; C, satisfactory; P, passing (see pass/fail option below); and D, low pass. These grades (except P) may be modified by a plus or minus. A Z may be assigned for the satisfactory completion of the first term of a two-course sequence, and the final grade for both courses is assigned at the end of the second course of the sequence.

Although the D grade represents low pass, in Trinity College not more than two courses passed with D grades may be counted among those required for year-to-year continuation or among the thirty-four courses required for graduation. Courses for which a D grade is earned, however, satisfy other requirements. For information on repeating a course with a D grade, see the section on course load and eligibility for courses on page 51.

**Failing Grades.** A grade of F or U (see pass/fail grading system below) indicates that the student has failed the course. The grade is recorded on the student's record. If the student registers for the course again, a second entry of the course and the new grade earned are made on the record, but the first entry is not removed, and it is included in the calculation of the cumulative grade point average.

**Grade Point Average.** The grade point average is based on grades earned in courses offering credit at Duke and may be calculated based on the following numerical equivalencies to the grading system:

<table>
<thead>
<tr>
<th>Letter</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

With pass/fail courses, a P is not calculated into the grade point average, but a U (failing) is a part of that calculation. The semester and cumulative grade point averages are determined at the end of each semester and displayed for students on the academic history reports made available to them via ACES.

**Pass/Fail Grading System.** With the consent of the instructor, a student who has declared a major may register, following instructions included in registration information, for grading on a pass/fail basis in one elective course each semester and summer session. Courses taken on the Pass/Fail basis (whether offered only Pass/Fail or elected Pass/Fail by the student) do not count toward satisfying the requirements of a major, minor, or certificate programs. Additionally, no other degree requirements (including prerequisites), except the requirement for thirty-four course credits and the continuation requirements, may be met by a course passed under the pass/fail option. Seminars and tutorials may not be taken on the pass/fail basis, unless the course is offered only on that basis. Taking a course on the pass/fail
basis may make one ineligible for the dean’s list. See the section on academic honors in this chapter.

After the drop/add period in any term, no changes from pass/fail to regular status, or from regular to pass/fail status, are permitted in any course. A P may not be converted subsequently to a regular letter grade, and the course may not be retaken under the regular grading system.

**Grades When Absent from Final Examination.** See the section on final examinations and excused absences on page 56.

**Effects of Incomplete Work.** For purposes of determining satisfactory progress each term and toward graduation, incomplete work in a course indicated by a grade of I or X is considered a failure to achieve satisfactory performance in that course. Furthermore, an incomplete during the academic year cancels eligibility for semester honors; i.e., Dean's List and Dean's List with Distinction. See the section on incomplete work on page 56.

**The W and WA Designations.** The designation W is recorded when a student officially withdraws from a course after the drop/add period. (See the sections on course changes in this chapter.) W indicates withdrawal from an audited course. Neither W nor WA is a grade.

**Continuation**

Students must achieve a satisfactory record of academic performance each term and make satisfactory progress toward graduation each year to continue in the college. Students who fail to meet the minimum requirements to continue must leave the college for at least two semesters. (A summer session may be counted as a semester.) Those desiring to return after the dismissal period may apply to Trinity College of Arts and Sciences for readmission. If, after readmission, the student fails again to meet minimum requirements, the student will be ineligible, except in extraordinary instances and after a minimum of five years, for readmission to the college. Students admitted to degree programs from Continuing Education should consult their academic dean concerning continuation.

**Satisfactory Performance Each Term (Semester Continuation Requirements).** A student who does not receive a passing grade in all courses must meet the following minimum requirements or be withdrawn from the college.

*In the Fall or Spring Semester:* (1) in the first semester of enrollment at Duke, a student must pass at least two semester courses; (2) after the first semester at Duke, a student must pass at least three semester courses; (3) a student taking an authorized underload after the first semester at Duke must earn all passing grades. Students may not carry an underload without the permission of their academic dean. For the purposes of continuation, incomplete work in any course is considered a failure to achieve satisfactory performance in that course. Therefore, where continuation is in question, incomplete work in any course must be completed with a passing grade in time for final grades to be submitted to the Office of the University Registrar no later than the weekday preceding the first day of classes of the spring semester, or one week prior to the first day of classes of the second term of the summer session, as appropriate. In the case of incomplete work in the spring semester, this requirement applies whether or not the student plans to attend one or more terms of the summer session. The student, however, may not enroll in a summer term at Duke unless the requirement of satisfactory performance each semester has been satisfied.

*In the Summer Session:* to continue enrollment at Duke in the fall, a student enrolled at Duke in any previous semester must not fail more than one full course taken during that summer. For purposes of continuation, incomplete work is considered failure to achieve a satisfactory performance in that course. Therefore, when eligibility to continue from the summer session to the fall is in question, incomplete courses must be satisfactorily completed in time for a passing grade to be submitted to the Office of the University Registrar no later than the weekday preceding the first day of fall classes.
Any student excluded from the college under the provisions of these regulations may on request have the case reviewed by the senior associate dean of Trinity College of Arts and Sciences.

Satisfactory Progress toward Graduation (Annual Continuation Requirements). Each year prior to the beginning of fall term classes, a student must have made satisfactory progress toward fulfillment of curricular requirements to be eligible to continue in the college; i.e., a certain number of courses must have been passed at Duke according to the following schedule:

<table>
<thead>
<tr>
<th>To be eligible to continue to the</th>
<th>A student must have passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd semester at Duke</td>
<td>2 semester courses at Duke</td>
</tr>
<tr>
<td>3rd semester at Duke</td>
<td>6 semester courses at Duke</td>
</tr>
<tr>
<td>4th semester at Duke</td>
<td>10 semester courses at Duke</td>
</tr>
<tr>
<td>5th semester at Duke</td>
<td>14 semester courses at Duke</td>
</tr>
<tr>
<td>6th semester at Duke</td>
<td>19 semester courses at Duke</td>
</tr>
<tr>
<td>7th semester at Duke</td>
<td>22 semester courses at Duke, plus two additional courses¹</td>
</tr>
<tr>
<td>8th semester at Duke</td>
<td>26 semester courses at Duke, plus two additional courses¹</td>
</tr>
</tbody>
</table>

¹The additional semester courses may be earned through advanced placement and/or transferred courses.

For students who have interrupted their university studies, the continuation requirement must still be satisfied before the beginning of each fall term. For such students, the number of courses needed to satisfy the continuation requirement is determined from the table above, based on which semester they will enter in the fall term.

Courses taken in the summer term at Duke may be used to meet this requirement; except as noted, advanced placement may not be used to satisfy it. No more than two courses completed with D grades may be counted toward fulfilling this annual continuation requirement.

Academic Warning and Probation

A student whose academic performance satisfies continuation requirements (see above), but whose record indicates marginal scholarship, will be subject either to academic warning or academic probation. Failure to clear probationary status in the semester of probation will result in a student's dismissal for academic reasons. (See the section "Continuation" for information concerning dismissal.) Students admitted to degree programs from Continuing Education should consult their academic deans concerning warning and probation.

**Academic Warning.** A student who receives a single grade of F or a second D will be issued an academic warning by the academic dean.

**Academic Probation.** For a student enrolled in four or more semester courses, the following grades will result in academic probation for the succeeding semester: during the first semester of the freshman year, grades including DD, DF, or FF; during any subsequent semester, grades including DDD, DF or FF (as long as the student has passed three other semester courses); and during two consecutive semesters, grades including DDDD, DDDF, or DDFF. For a student enrolled in an authorized underload (i.e., fewer than four course credits), the following academic performance will result in academic probation: during the first semester of the freshman year, grades of DD or F; during any subsequent semester, grades including DDD or DF (as long as 3.0 course credits have been passed in that semester); and during two consecutive semesters, grades including DDDD, DDDF, or DDFF. In a case where probation may be in question because of an incomplete grade, the student will be notified by the dean of the need to have the incomplete replaced by a satisfactory grade in order to avoid probation.
The probation status will be reflected on those academic records used for internal purposes only. Students placed on academic probation must acknowledge their probationary status in writing to their academic dean in order to continue in the college. They are also expected to seek assistance from campus resources, have their course selection approved by their academic deans and meet periodically with them. They may not study abroad during the probation period. Students are expected to clear their probationary status during the semester of probation. In order to do so, they must enroll in four full-credit courses, of which no more than one may be taken on a pass/fail basis. Grades of C-, P, or better must be earned in each course, or a C average must be achieved in that semester.

Probationary status cannot be cleared in a semester in which students seek permission and are allowed to withdraw to an underload. In such cases, the probationary status continues through the next semester of enrollment or in both terms of the summer session. Students on probation, whether in a normal load or an underload, are required to meet continuation requirements. Students whose probationary status for reason of an underload continues to a second semester must adhere to the conditions and standards previously outlined for clearing probation. Failure to do so will result in academic dismissal.

Changes in Status

Withdrawal and Readmission. Students who wish to withdraw from the college must give official notification to their academic dean. Notification must be received prior to the beginning of classes in any term, or tuition will be due on a pro rata basis. (See the section on refunds in the chapter "Financial Information.") For students withdrawing on their own initiative after the beginning of classes and up to the first day of the last four weeks of regular classes in the fall or spring term, or before the last two weeks of regular classes in a summer term, a W is assigned in lieu of a regular grade for each course. After these dates an F grade is recorded unless withdrawal is caused by an emergency beyond the control of the student, in which case a W is assigned by the student's academic dean. Students who withdraw voluntarily during the last four weeks of classes may not apply for readmission for the subsequent semester.

Students may be involuntarily withdrawn for academic reasons, financial reasons, violation of academic regulations, and disciplinary reasons, as well as administratively. Their withdrawal will be noted accordingly on the official academic record. The expectations pertaining to each are found in the chapters "Degree Programs," "Financial Information," "Campus Life and Activities," and this chapter, "Academic Procedures and Information." Students with a dismissal pending are not in good standing and therefore are ineligible to undertake coursework prior to the dismissal period.

Applications for readmission are made to the appropriate school or college. Each application is reviewed by officers of the school or college to which the student applies, and a decision is made on the basis of the applicant's previous record at Duke, evidence of increasing maturity and discipline, and the degree of success attendant upon activities during the time away from Duke. Students who are readmitted may be considered for housing on campus.

Applications for readmission must be completed by November 1 for enrollment in the spring, by April 1 for enrollment in the summer, and by July 1 for enrollment in the fall.

Leave of Absence. Most leaves of absence are granted for two reasons: personal and medical. After reaching the second semester of the first year, students in good standing may request a leave of absence for one or two semesters by completing a leave request form and submitting it to their academic dean. Students are expected to file leave of absence forms with their deans by the end of the last day of classes of the semester immediately preceding the leave. A personal leave of absence usually starts after one semester ends and before the next semester begins; a medical leave of absence with proper documentation may be granted at any time, but before the last day of classes in a semester should a leave be required before
the semester ends. Detailed information about leaves is provided on the request form available in the academic deans’ offices and on T-Reqs: www.aas.duke.edu/trinity/t-reqs/. Registration information will be provided to students on leave by the university registrar. Ordinarily, students who take a medical leave of absence during a semester become eligible, with proper medical clearance, to return after a full/regular semester has passed. They will be sent registration information when they have provided to their academic dean acceptable medical documentation to clear them for a return, and they must be cleared by their dean at least one week prior to the beginning of classes. All returning students must register prior to the first day of classes for the term of intended enrollment. Students returning from approved leaves and desiring housing on campus will be placed in the general housing lottery, provided they have submitted the appropriate information to the Office of Residence Life and Housing Services by its published deadline and provided that they lived on campus before taking their approved leave. Students who fail to return as expected will be withdrawn from the university and will have to apply for readmission.

Students who undertake independent study under Duke supervision and for Duke credit are not on leave of absence even if studying elsewhere. Students register at Duke as a nonresident student and pay the appropriate fees or tuition at Duke. This policy also applies to Duke programs conducted away from the Durham campus.

Transfer Between Duke University Schools. Students in good standing may be considered for transfer from one Duke undergraduate school or college to another, upon completion of an application form available in the office of the designated associate dean in Trinity College and the assistant dean for undergraduate affairs in the Pratt School of Engineering. The review of requests to transfer involves consideration of a student’s general academic standing, citizenship records, and relative standing in the group of students applying for transfer. The school or college to which transfer is sought will give academic counseling to a student as soon as intention to apply for transfer is known, although no commitment will be implied. A student may apply to transfer at any time prior to receiving a baccalaureate degree, but transfers may become effective only upon completion of the first year. A student transferring to Trinity College of Arts and Sciences from the Pratt School of Engineering, prior to receiving a baccalaureate degree, may not use more than six professional school credits toward the Bachelor of Arts or Bachelor of Science degree. If admitted after having earned a baccalaureate degree in either Trinity College or the Pratt school, a student must complete in the new school/college a total of seventeen additional courses and fulfill degree requirements in order to be eligible for a second undergraduate degree at Duke.

Transfer from Duke to Another Institution. If a student enrolled at Duke subsequently transfers to another institution as a degree-seeking student, the student will be ineligible to re-enroll as an undergraduate at Duke. Students considering transferring to another institution should discuss this with their academic dean in the early stages of their planning.

Full-Time and Part-Time Degree Status. Candidates for degrees must enroll in a normal course load (i.e., at least four semester courses) each semester. Students who intend to change from full-time to part-time status must request permission from their academic dean. Except for extraordinary circumstances, such permission is given only to students for the final semester of their senior year. So that the number of part-time students can be taken into account in enrollment and budget decisions, juniors must plan ahead and register their intention to be part-time by April 15 preceding the academic year in which the part-time semester will be taken. Part-time students may register for not more than two courses (or two courses and a half-credit physical education activity). Part-time students may not live in university housing. Degree candidates who matriculated through Continuing Education or are employees should confer with their academic dean about course load requirements.

Resident and Nonresident Status. See the chapter "Campus Life and Activities."
Nondegree to Degree Status. A nondegree student must apply to the Office of Undergraduate Admissions for admission to degree candidacy.

Undergraduate Status. An undergraduate student admitted to Trinity College or the Pratt School of Engineering officially becomes a Duke undergraduate student at the point of matriculation and is accorded all the rights and privileges of a Duke student at that time. When an undergraduate has completed all of the requirements of the bachelor’s degree and is no longer enrolled in course work towards the degree, the student ceases to be a Duke undergraduate student in the strict sense of the word. Their rights and privileges are then defined by the Duke Alumni Association. (Note: this definition also applies to non-degree seeking visiting students during the period of their enrollment at Duke.)

Academic Recognition and Honors

In determining a student's eligibility for academic recognition and honors, only grades earned in Duke courses, including those earned in Duke Study Abroad programs and in courses covered by the interinstitutional agreement (see index) are considered.

Dean's List accords recognition to academic excellence achieved during each semester. To be eligible for this honor, undergraduates in Trinity College of Arts and Sciences must earn a grade point average for a semester that places them in the highest third of undergraduates in their respective college and in addition must (1) complete at least four course credits, including at most two academic half courses (excluding dance performance/technique, physical education activity, music activity, and house courses) for a regularly assigned grade (i.e., no pass/fail courses); and 2) receive no incomplete or failing grades. Undergraduates who in addition earn semester grade point averages that place them in the highest ten percent of undergraduates in their respective college will receive the Dean's List with Distinction honor, while the remainder of those placing in the highest one third will receive the Dean's List honor as noted above.

In the Pratt School of Engineering, undergraduates must earn a grade point average placing them in the highest one third of their class and in addition must: (1) carry a normal academic load, including four credits other than dance performance/technique, physical education activity, music activity, and house courses; (2) earn grades other than P in at least three semester courses; and (3) receive no incomplete or failing grades. Undergraduates who in addition earn grade point averages that place them in the highest ten percent of their class also will receive the Dean’s List with Distinction honor, while the remainder of those placing in the highest one third will receive the Dean’s List honor as noted above.

Graduation with Distinction accords recognition to students who achieve excellence in their major area of study as determined by the departments and as approved by the Committee on Honors of the Arts and Sciences Council. All academic units offering a major have eligibility requirements and procedures leading to graduation with distinction, as does Program II. Some may offer a double honors option, that is, honors in two academic units for a single thesis. Graduation with distinction is separate and distinct from Latin Honors (see below). Interested students should consult the relevant directors of undergraduate study or Program II dean for information about specific requirements of and eligibility for graduation with distinction. In general, students seeking to graduate with distinction will participate during their junior and/or senior years in a seminar and/or a directed course of reading, laboratory research, or independent study which results in substantive written work. Each student's overall achievement in the major or in Program II, including the written work, is assessed by a faculty committee. Graduation with distinction may be awarded at one of three levels: highest distinction, high distinction, or distinction, though not all academic units offer all levels.

Latin Honors by Overall Academic Achievement accords recognition for academic excellence achieved over the duration of an entire undergraduate career. Unlike the Dean's List honor which recognizes academic excellence achieved over the short term (one semester), eligibility for the three categories of Latin Honors (summa cum laude, magna cum
laude, and cum laude) is based on the cumulative grade point average for all work at Duke. Recipients are determined by the following procedure: The grade point average included within the highest five percent of the previous year's graduating class is used to specify the grade point average needed by those students of the current graduating class to be awarded the summa cum laude honor. The grade point average included within the next highest ten percent of the previous year's graduating class is used to determine the grade point average needed by those students who will graduate with the magna cum laude honor. Finally, the grade point average included within the next ten percent of the previous year's graduating class will be used to determine those students eligible for graduating with the cum laude honor. Thus, about twenty-five percent of each graduating class will receive Latin Honors.

OTHER HONORS

Trinity College of Arts and Sciences and the Pratt School of Engineering officially recognize the following national academic honor societies, each of which has a long and distinguished reputation at Duke and throughout the United States. Because the last several years have seen a proliferation of academic societies in America, undergraduates at Duke should be careful to scrutinize invitations to join national honor societies with which they are unfamiliar.

**Phi Beta Kappa.** Phi Beta Kappa, the national academic honor society founded at William and Mary on December 5, 1776, elects undergraduate students in Trinity College and the Pratt School of Engineering each fall and spring. Eligibility for election is determined not by the university but by the bylaws of the local chapter (Beta of North Carolina) on the basis of outstanding academic achievement and high moral character. Reviews of the academic record of all prospective candidates are conducted in the junior and senior years. The academic record must not contain an unresolved incomplete (I). For early election, students must have completed at least eighteen but fewer than twenty-four graded courses taken at Duke. Regular election requires at least twenty-four graded courses taken at Duke. Transfer students and other students who do not qualify under the preceding requirements may be eligible for deferred election; such students must also have achieved a superior academic record in graded courses at Duke, especially over the last sixteen courses. Students who have graduated magna cum laude and who have been awarded Graduation with Distinction in their first or second major through a vote of at least three faculty members may be nominated for election to Phi Beta Kappa by a faculty member in the distinction department. The nomination must be received by the end of the semester following the student’s graduation. Additional information is available on the honors Web site. The total number of persons elected annually is limited by chapter bylaw to no more than ten percent of the graduating class, of whom no more than one percent can be selected by early election. Eligibility requires a course of study with the breadth that characterizes a liberal education. The Program I curriculum meets those expectations; Program II and Engineering students must demonstrate comparable breadth in order to be eligible. Inquiries concerning distribution requirements for students in the Pratt School of Engineering should be directed to Professor Rhett George, Department of Electrical Engineering. All other inquiries may be directed to the Secretary of Phi Beta Kappa, Box 99352, Duke Station, Durham, NC 27708.

**Sigma Xi.** The Scientific Research Society, Sigma Xi, is an honor society for engineers and natural, physical, chemical, and social scientists that recognizes scientific achievement. Undergraduates who have shown potential as researchers may be invited to join as associate members. Alternatively, an undergraduate student who is interested in membership in Sigma Xi and who has completed a significant research project in a pure or applied science may inquire about membership procedures through the Duke Chapter Office (sigmaxi@duke.edu). Full membership is conferred upon those who have demonstrated noteworthy research achievements, through peer-reviewed publications. A dues paying student member of Sigma Xi or a student whose project advisor is a dues paying member of Sigma Xi is eligible to apply for research support to the Society’s Grants-in-Aid of Research program. More information is available from from the Undergraduate Research Support
Office at Duke or through the Chapter's (www.duke.edu/web/sigmaxi/) or the Society's (www.sigmaxi.org) Web site.

**Tau Beta Pi.** Elections to the national engineering honor society, Tau Beta Pi, are held in the fall and spring. Eligibility is determined on the basis of distinguished scholarship and exemplary character. Engineering students whose academic standing is in the upper eighth of the junior class or the upper fifth of the senior class have earned consideration by their local chapter. Inquiries may be directed to the Advisory Board, Tau Beta Pi, Pratt School of Engineering, Box 90271, Duke University, Durham, North Carolina 27708.

**International Postgraduate Scholarships.** Students interested in various prestigious fellowships for graduate study (for example, the Fulbright, Luce, Marshall, Rhodes, and Winston Churchill) should consult the Web site: www.aas.duke.edu/ousf/postgrad/. Specific information about deadlines and procedures for the individual scholarships and fellowships is available through that site.
Prizes and Awards

The achievements of undergraduate students are recognized in various fields of activity. The following prizes suggest the range of recognition. According to current university policy, some of the scholarships listed must be awarded in honorary form unless the students chosen are on financial aid, in which case the scholarships will be incorporated in the winners' financial packages. These scholarships are identified by an asterisk (*).

HUMANITIES

The Edward H. Benenson Awards in the Arts. These awards are granted annually by a faculty committee through the bequest of Duke alumnus and former trustee Edward H. Benenson. Funds are awarded based on merit for legitimate educational expenses for projects in art, music, theater, dance, creative writing, photography, film/video/digital and other art forms. All undergraduates and graduating seniors are eligible. The application deadline is in March.; forms and instructions are available in the spring term from the Office of Trinity College and online.

The Louis Sudler Prize in the Arts. An award is presented annually by a faculty committee to a graduating senior who has demonstrated the most outstanding achievement in artistic performance or creation during four years of undergraduate work. The prize of $1,000 was established in 1983 through the generosity of Louis C. Sudler, Chicago, Illinois.

The David Taggart Clark Prize in Classical Studies. This prize derives from income earned on the generous bequest (1956) of Professor David Taggart Clark, classicist and economist. It is awarded to the senior major in classical civilization or classical languages who is judged to have written the best honors essay of the year, and consists of an important book or books in the field of classics.

Harold Brody Award for Excellence in Musical Theater. In recognition of exceptional achievement in musical theater, this award is given annually to a Duke student or group of students, with preference given to graduating seniors. It recognizes accomplishments in musical theater by students in the Department of Theater Studies, the Department of Music, and the student-run musical theater group Hoof 'n' Horn. The award was established by an alumnus with a deep affection for and appreciation of the art of musical theater.

John M. Clum Distinguished Theater Studies Graduate Award. This award is named for the distinguished founder of the Duke University Program in Drama, now the Department of Theater Studies. It recognizes a graduating senior who has made extraordinary contributions to the life of the department and who has exhibited outstanding personal and professional qualities.

Alex Cohen Awards. These awards, funded by the Alex Cohen Endowment and the Department of Theater Studies, support student initiatives in theater during the summer. Two to four grants are awarded every spring. These awards were established in honor of Alex Cohen (1972-1991), a Duke student and aspiring actor.

Richard E. Cytowic Outstanding Acting Student Award. This award, donated by Dr. Richard E. Cytowic '73, a former President of Duke Players, recognizes a graduating senior who has distinguished him or herself in class work, production, and by contributing to the life of the department. Richard Cytowic acted in and directed a number of productions for Duke Players during his three years as a Duke undergraduate. He was a founding member of the Summer Theater at Duke Company in 1972. Dr. Cytowic was also a student member of the committee that established the Program in Drama, which became the Department of Theater Studies.

Dasha Epstein Award in Playwriting. This award is presented annually to a current Duke student (preference given to third-year students) with demonstrated promise in playwriting. The award covers the costs of attending the Vassar College and New York Stage and Film’s Powerhouse Theater Apprentice Program.

The Jody McAuliffe Award for Excellence in Directing. This award is presented annually to an undergraduate at Duke University for sustained excellence in directing for the stage. It is supported by alumnus Amit Mahtaney.

Reynolds Price Award for Script-writing. This award is presented annually by the Department of Theater Studies to a Duke undergraduate for the best original script for stage, screen, or television.

Dale B.J. Randall Award in Dramatic Literature. This award recognizes outstanding achievement in the study of dramatic literature. It is presented annually to the undergraduate student writing the best essay in a course in dramatic literature. It honors Professor Emeritus Dale B.J. Randall, a distinguished scholar of Renaissance English drama, a member of Duke’s English department faculty from 1957 to 1999 and of the Program in Drama from 1991 to 1999. He served as Interim Director of the latter in 1991-92.

Kenneth J. Reardon Award. This award recognizes outstanding commitment and leadership in theater design, management, or production. It was established in honor of Kenneth J. Reardon, former professor of English (1947-1980) and director of Duke Players (1947-1967). Professor Reardon was an inspiration to decades of students through his commitment to producing and teaching theater on the Duke campus. With the help of Professor Joseph
Weatherby, he planned and implemented the conversion of an engineering building into what is now the beloved Branson Theater on East Campus.

The Bascom Headen Palmer Literary Prize. This prize was established in honor of Bascom Headen Palmer's achievement as recipient of the Hesperian Literary Society Medal in 1875, his senior year in Trinity College.

The Henry Schuman Music Prize. A prize of $350 is awarded annually to a graduating senior for an original composition or a distinguished paper in music history or analysis. The award is sponsored by the Department of Music through a continuing gift from Dr. and Mrs. James H. Semans, who named the prize after Henry Schuman, a lifelong friend of the Semans and Trent families, a talented amateur violinist, and one who helped to build valued collections in the Duke library.

Giorgio Ciompi Scholarships. Named for the founder of the Ciompi String Quartet, Duke University's quartet in residence, these music scholarships are given to students who can demonstrate talent and achievement on a string instrument. Although recipients need not major in music, they are required to study privately. These scholarships cover fees for applied instruction.

The Smith Memorial Scholarship. This scholarship of up to $2,000, in memory of Marvin Boren and Elvira Lowe Smith, is awarded to an organist who is an undergraduate music major. It is renewable as long as the recipient continues to study the organ and maintains satisfactory progress.

The Larry and Violet H. Turner Scholarships. Established by a gift of Larry Turner, class of 1935, these scholarships are given to undergraduates demonstrating outstanding ability on a string instrument. Although recipients need not major in music, they are required to study privately and to participate as members of the Duke Symphony Orchestra. The scholarships cover fees for private instruction.

The Julia Wilkinson Mueller Prize for Excellence in Music. An award of $300 will be presented to a graduating senior for achievement in musical performance.

The Guido Mazzoni Award in Italian. This award is given each year to an outstanding Italian major in honor of Guido Mazzoni (1859-1943), Italian patriot, military hero, Professor of Italian, and member of the Italian parliament.


*The William M. Blackburn Scholarship. This fund was established in 1962 to honor William Blackburn, distinguished teacher of writing at Duke. The scholarship, awarded by the Department of English, recognizes outstanding achievement in the field of creative writing.

Stanley E. Fish Award for Outstanding Work in British Literature. This award, given by the Department of English, recognizes outstanding work by an undergraduate enrolled in an English course in British Literature.

The Anne Flexner Memorial Award for Creative Writing. This award was established by the family and friends of Anne Flexner, who graduated from Duke in 1945. Open to all Duke undergraduates, the competition for prose fiction (5,000-word limit) and poetry (200-line limit) is sponsored in the spring semester by the Department of English.

The Terry Welby Tyler, Jr. Award for Creative Writing. This award was established by the family of Terry Welby Tyler, Jr., who would have graduated with the class of 1997, to recognize and honor outstanding undergraduate poetry. Open to all Duke undergraduates, the competition is sponsored by the Department of English.
Margot Hill Support Grants. The Hill Support Grants set aside funds to assist undergraduate students in taking advantage of opportunities that might arise during the academic year, such as attending workshops, conferences, and retreats. Students may apply for these grants by providing Carol Renegar with a statement of how the grant is to be used. More than one student may apply for the same event. This will be available on a rolling basis.

Schutte Senior Writing Award. This cash award, named in honor of Margot Hill’s (Duke ’04) high school English teacher, is intended to recognize the whole of a student’s creative achievements during his or her time at Duke. It is given to a graduating senior of superior writing ability who contributes greatly to the wider writing community on campus. Nomination of candidates will be made exclusively by members of the full time English department writing faculty, and selection will be made by the creative writing committee. Should no candidate meet the standards of the award in a given year, no award will be made.

Award for Most Original Honors Thesis. This award is given by the Department of English for the most original honors thesis.

Award for Outstanding Work in American Literature. This award, given by the Department of English, recognizes outstanding work by an undergraduate enrolled in an English course in American Literature.

SOCIAL SCIENCES

The Winfred Quinton Holton Awards in Education. These awards were established in 1922 by gifts of Holland Holton, Class of 1907, and Lela Young Holton, Class of 1907, in memory of their son, Winfred Quinton Holton, with the income to be used for work and projects involving education. Two Holton awards are given: an award for educational research and an award for early childhood studies. Decisions are made by faculty in the Program in Education.

The William T. Laprade Prize in History. This prize is offered in honor of William T. Laprade, who was a member of the Department of History at Trinity College and Duke University from 1909 to 1953, and chairman of the department from 1938 to 1952. It is awarded to a senior who is being graduated with distinction and whose senior essay in history has been judged to be unusually meritorious.

Robert S. Rankin Political Science Awards:

Award in American Government and Constitutional Law. An award to the outstanding student in the field of American government and constitutional law. A monetary prize is donated by a former student of Professor Rankin’s, Judge Jerry B. Stone, A.B. ’44, J.D. ’48.

Award in American National, State, and Local Governments. An award to the outstanding student in the field of American national and/or state and/or local governments. A monetary prize is also donated by Judge Stone.

American Government Award for Leadership and Academic Achievement. One or more awards have been donated by Robert H. Connelly, Professor Emeritus of Public Law and Government at Columbia University and from 1949-65 a colleague of Professor Rankin when both were members of the Duke faculty, and by a group of Professor Rankin's former students. These monetary awards are given to students, chosen by the Department of Political Science, who have demonstrated excellence in the study of American government and whose past achievements and future promise manifests not only high intellectual attainments, but also an exemplary leadership role in service to Duke University or to the community as broadly defined.

Alona E. Evans Prize in International Law. An annual award to an undergraduate and/or graduate student in arts and sciences whose paper(s) on international law reflect(s) excellence in scholarship. Funds for the award are derived from income earned on the generous bequest of Professor Alona E. Evans, A.B. ’40, Ph.D. (political science) ’45.

Ole R. Holsti Award in American Foreign Policy and International Relations. An award to honor the best undergraduate written work in the area of American foreign policy and international relations. Ole R. Holsti, Professor Emeritus of Political Science, taught at Duke from 1974-1998. Funds for the award are derived from gifts from the international relations faculty in the Department of Political Science, Duke University.

Elizabeth G. Verville Award. An annual award to the undergraduate who submits the best paper in the subject matter of political science. Funds for the award are derived from a gift donated by Elizabeth G.Verville, a political science major, A.B. ’61.

The Marguerite (Mimi) Voorhees Kraemer Award. This annual award was created by the family and friends of Mimi Voorhees, a public policy studies major, class of 1979. It recognizes one or more PPS students who have demonstrated strong leadership qualities and a commitment to public service. This award is given to qualifying juniors as a scholarship to help defray the costs of participating in the summer internship program.

The Melcher Family Award for Excellence in Journalism. This $500 award is presented annually by the Sanford Institute of Public Policy, recognizing the graduating major with the highest academic achievement in public policy.
or junior at Duke University. The award was created by Richard A. Melcher ('74), a former writer for The Chronicle, to support excellence in student journalism. The deadline for article submissions is June 1.

The Terry Sanford Departmental Award. This award is presented annually by the Sanford Institute of Public Policy to the graduating major recognizing his/her achievement in leadership.

The Karl E. Zener Award for Outstanding Performance of a Major in Psychology. Psychology students submitting outstanding theses for Graduation for Distinction may be nominated for the Karl E. Zener Award. A committee of three faculty members along with the director of undergraduate studies determines the winner of this award. The award is based on the student’s total academic record as well as the paper submitted to the award committee. This award consists of a monetary prize and inclusion by name on a memorial plaque in Zener Auditorium.

NATURAL SCIENCES AND MATHEMATICS

The Edward C. Horn Memorial Prize for Excellence in Biology. Given each year to a graduating biology major who has shown, in the opinion of the biology faculty, the highest level of academic achievement and promise, this prize is offered in memory of Professor Edward C. Horn. It is a tribute to his warm regard for students and faculty and his appreciation of scholarly excellence. The prize consists of books appropriate to the student's field of interest.

The Excellence in Plant Science Prize. Given each year by the plant science faculty to a graduating biology major who has demonstrated excellence in botanical research. The prize consists of books appropriate to the student's field of interest.

The James B. Rast Memorial Award in Organismal Biology. The parents and friends of James Brailsford Rast, a member of the Class of 1958 of Duke University, endowed this award in his memory. This award is given each year by the biology faculty in recognition of excellence in course work and research in the study of organismal biology.

The Maggie Schneider Award in Marine Biology. In memory of Maggie Schneider, a member of the Duke class of 2004, this award is given each year by the faculty of the Duke University Marine Laboratory to the biology major who demonstrates the love of learning and service in marine and conservation biology.

American Chemical Society Undergraduate Award in Analytical Chemistry. This prize is given annually by the Analytical Division of the American Chemical Society to an undergraduate student in analytical chemistry. Selection by a faculty committee is based on academic excellence and laboratory proficiency. The prize is a subscription to the journal Analytical Chemistry published by the American Chemical Society.

The Chemistry Department Award. This prize is awarded annually to an outstanding senior chemistry major in the Bachelor of Science degree program. Selection by a faculty committee is based on the student's independent research and interest in pursuing advanced work in chemistry. The award is a one-year membership in the American Chemical Society and a one-year subscription to an appropriate journal.

The Merck Index Award. This prize is awarded annually to one or more graduating chemistry majors intending to pursue a career in medicine. Selection, by a faculty committee, is based on scholastic excellence. The prize consists of a copy of the Merck Index presented by Merck and Co., Inc.

The Hypercube Scholar Award. This prize is awarded annually to an outstanding senior chemistry major in the bachelor of science program. Selection, by a faculty committee, is based on the student's scholastic achievement, performance in independent study, and interest in pursuing advanced work in a field of chemistry that utilizes molecular modeling extensively. The prize consists of a molecular modeling computer software package presented by Hypercube, Inc.

Thomas V. Laska Memorial Award. Awarded annually by the Division of Earth and Ocean Sciences to a graduating senior in recognition of most outstanding achievement and promise for future success in the earth and ocean sciences. The recipient receives a gift and his/her name is engraved, with those of past recipients, on a granite tablet located in the divisional office. The award is sponsored by Andrew J. and Vera Laska in memory of their son, Thomas Vaclav Laska.

Estwing Award. Awarded annually to a graduating senior in the Division of Earth and Ocean Sciences by his/her peers in recognition of outstanding achievement in the earth and ocean sciences.

The Julia Dale Prize in Mathematics. This award was established in 1938 by friends and relatives of Julia Dale, an assistant professor of mathematics at Duke University who died early in her career. The annual cash award is given through the Department of Mathematics to one or more undergraduate students in recognition of excellence in mathematics.

Karl Menger Award. This award was established in 1989 by relatives of the distinguished twentieth-century mathematician Karl Menger. The annual cash award is given through the Department of Mathematics in recognition of outstanding performance in mathematical competitions.
The Walter J. Seeley Scholastic Award. This award is presented annually by the Engineers' Student Government to that member of the graduating class of the school who has achieved the highest scholastic average in all subjects, and who has shown diligence in pursuit of an engineering education. The award was initiated to honor the spirit of academic excellence and professional diligence demonstrated by the late Dean Emeritus Walter J. Seeley. It is hoped that this award will serve as a symbol of the man and the ideals for which he stood. The name of the recipient is inscribed on a plaque displayed in the Engineering Building.

The American Society of Civil Engineers Prize. The prize is awarded annually by the North Carolina Chapter of the American Society of Civil Engineers to two outstanding civil engineering seniors, upon recommendation of the faculty of the civil engineering department. The basis for selection is the student's scholastic record, contribution to the student chapter, and participation in other college activities and organizations. The prize consists of a certificate of award and the payment of one year's dues in the American Society of Civil Engineers.

The George Sherrerd III Memorial Award in Electrical Engineering. This award is presented annually to the senior in electrical engineering who, in the opinion of the electrical engineering faculty, has attained the highest level of scholastic achievement in all subjects and has rendered significant service to the Pratt School of Engineering and the university at large. The award was established in 1958 by the parents of George Sherrerd III, a graduate of the Class of 1955, to recognize outstanding undergraduate scholarship. Recipients receive a monetary award, and their names are inscribed on a plaque displayed in the Engineering Building.

The William Brewster Snow Award in Environmental Engineering. This award is presented annually to an outstanding senior in environmental engineering as a career. Selection of the recipient is made by the civil engineering faculty. The recipient is presented with an inscribed plaque and his or her name is also inscribed on a plaque permanently displayed in the Engineering Building.

The Otto Meier, Jr. Tau Beta Pi Award. This award was established in recognition of Dr. Meier's leadership in establishing the North Carolina Gamma Chapter in 1948 and his continuous service as chapter advisor until 1975. This award is given annually to the graduating Tau Beta Pi member who symbolizes best the distinguished scholarship and exemplary character required for membership. The name of the recipient is inscribed on a plaque displayed in the Engineering Building.
The da Vinci Award. This award is presented by a faculty committee of the Department of Biomedical Engineering to the biomedical engineering senior with the most outstanding academic record. This award commemorates the contributions of Leonardo da Vinci in laying the foundations for the study of biomechanics.

The von Helmholtz Award. This award is presented by a faculty committee of the Department of Biomedical Engineering to the biomedical engineering senior who has made the most outstanding contribution to the department. This award commemorates the work of von Helmholtz in laying the foundations of biomedical engineering.

Aubrey E. Palmer Award. This award, established in 1980, is presented annually by the faculty of the Department of Civil and Environmental Engineering to a civil engineering senior in recognition of outstanding academic achievement. The award consists of a certificate of recognition and the name of the recipient inscribed on a plaque displayed in the Engineering Building.

The Mechanical Engineering and Materials Science Faculty Award. This award is presented annually in recognition of academic excellence to the graduating mechanical engineering senior who has attained the highest level of scholastic achievement in all subjects. The name of the recipient is inscribed on a plaque displayed in the Engineering Building.

The Eric I. Pas Award. This award, established in 1998 in memory of Dr. Eric Pas, former Director of Undergraduate Studies in Civil and Environmental Engineering, is presented to the graduating civil engineering senior judged by the faculty of the Department to have conducted the most outstanding independent study project.

The Charles R. Vail Award. This award recognizes the most outstanding undergraduate student teaching assistant in the Department of Electrical and Computer Engineering.

GENERAL EXCELLENCE WITH SPECIAL INTERESTS

The Janet B. Chiang Grants. These grants support student projects with the goal of furthering Asian/American understanding (qualifying projects would include the development and teaching of house courses, travel grants to educational conferences, stipends for independent research or publications development and for need-based grants for study in Asia).

The Sirena WuDunn Memorial Scholarship Fund. This fund was created by the family and friends of Sirena WuDunn. Awards are made annually to students who best embody Sirena’s ideals and interests and who have demonstrated academic excellence and interest in Asian culture.

The Raymond D. Lublin, M.D. Premedical Award. This award to an outstanding graduating senior who will be attending medical school and who has excelled in both science and non-science areas of the curriculum was established in the name of an honored physician and surgeon by his wife, Mrs. Raymond D. Lublin.

Richard K. Lublin Pre-Law Award. This award to an outstanding graduating senior who will be attending law school and who has excelled in academics, made a significant contribution to life at Duke, and evidences potential for success in law was established by Ms. Raymond Lublin in honor of her son Richard K. Lublin, Trinity ’61, a practicing attorney and former member of the Trinity College Board of Visitors.

Chester P. Middlesworth Awards. These awards were established to encourage and recognize excellence in research and writing by Duke students in their use of primary source materials held by the Rare Book, Manuscript, and Special Collections Library. Two cash awards are made annually to undergraduates through the Rare Book, Manuscript, and Special Collections Library which is housed within Perkins Library.

SPORTS

Kevin Deford Gorter Memorial Endowment Fund. This fund was created by the family of Kevin Deford Gorter to assist, promote, and expand the Sport Clubs program at Duke University. An award is made annually to the student who has made the greatest contribution to the program and best exemplifies the purposes of Sport Clubs at Duke University.

The William Senhauser Prize. Given by the mother of William Senhauser in memory of her son, a member of the Class of 1942, who gave his life in the Pacific theater of war on August 4, 1944. This award is made annually to the student in Trinity College of Arts and Sciences or the Pratt School of Engineering who has made the greatest contribution to the university through participation and leadership in intramural sports.

Notification of Intention to Graduate

The Diploma Form for students in Trinity College of Arts and Sciences and the Pratt School of Engineering is official notification that they expect to have completed all requirements for the degree and to receive the diploma on a particular graduation date. It is the responsibility of students to submit the form on or before established deadlines. For students in Trinity College, the diploma form, to be submitted during the fall registration period, is sent to prospective graduates at their acpub e-mail addresses. If desired, paper
copies can be obtained from the deans in Trinity College. In the Pratt School of Engineering, diploma forms are available in the dean’s office.

Graduation and Commencement

Graduation exercises are held once a year in May when degrees are conferred upon and diplomas are issued to those who have completed degree requirements by the end of the spring term. Those who complete the requirements by the end of the summer term or by the end of the fall term receive diplomas dated September 1 or December 30, respectively. Students who are within four course credits of graduation at the end of the spring term may request to participate in the annual graduation exercises. The request must be made in writing and submitted to their academic dean by February 8.

Education Records

Duke University adheres to a policy permitting students access to their education records and certain confidential financial information. Students may request review of any information which is contained in their education records and may, using appropriate procedures, challenge the content of these records. An explanation of the complete policy on education records may be obtained from the Office of the University Registrar.

No information, except directory information (see below) and notices about academic progress to parents and guardians (see page 62), contained in any student records is released to unauthorized persons outside the university or to unauthorized persons on the campus, without the written consent of the student. It is the responsibility of the student to provide the Office of the University Registrar and other university offices, as appropriate, with the necessary specific authorization and consent.

Directory information includes name, addresses, e-mail addresses, telephone listing, photograph, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and most recent previous educational institution attended. This information may be released to appear in public documents and may otherwise be disclosed without student consent unless a written request not to release this information is filed in the Office of the University Registrar.

The Provision of Academic Information to Parents and Guardians

Duke University complies with the policies set forth in the Family Educational Rights and Privacy act of 1974 concerning confidentiality, privacy, and release of information as they pertain to students' educational records. It is primarily the responsibility of students to keep parents and guardians informed of their academic standing and progress as well as any difficulties which may affect their performance. The Office of the Registrar sends grade reports to students at the end of each term and midterm reports to first-year students and their parents or guardians. Additionally, other available information is provided routinely to parents and guardians of undergraduates by the Office of the Dean. They are sent copies of correspondence to students notifying them of changes in their academic standing or regarding unsatisfactory performance which may lead to academic dismissal or the necessity of attending summer school. Parents and guardians may also be alerted to emergency and extraordinary situations which may impinge upon a student's well being.

Procedure for Resolution of Students’ Academic Concerns

Trinity College provides formal educational opportunities for its students under the assumption that successful transmission and accumulation of knowledge and intellectual understanding depend on the mutual efforts of teachers and students. Ideally, the college offers a range of learning experiences in which students strive to learn enough to be able to
test their ideas against those of the faculty, and faculty, through the preparation of course materials and the freshness of view of their students, discover nuances in their disciplines.

Sometimes, however, student-faculty interrelationships in certain courses give rise to concerns that, for whatever reason, can inhibit successful teaching and learning. When this occurs, students often need assistance in resolving the issues.

The faculty and administration of Trinity College attempt to be genuinely responsive to all such matters and a student should not hesitate to seek assistance from faculty and administrative officers in resolving problems.

Questions about course content, an instructor’s methods of presentation, the level of discourse, criteria for evaluation of students, or administrative procedures in a course should be directed to the instructor of the course. (See the following section, Undergraduate Grade Review Procedure, when concerned about a grade.) If a student believes that productive discussion with the instructor is not possible, courtesy requires that the instructor be informed before the student refers questions about the course to the director of undergraduate studies or, in his or her absence, to the chairman of the department. If a student’s concern involves a departmental policy rather than an individual course, the student should first confer with the director of undergraduate studies in the department. A list of the names, addresses, and telephone numbers of the various directors of undergraduate studies can be found in the University Directory. Staff members in the department offices can assist in arranging appointments with the directors. When necessary, directors of undergraduate studies may refer students to the department chairman.

A student in doubt about how to proceed in discussing a particular problem, or who seeks resolution of a problem, is encouraged to confer with an academic dean of Trinity College or Pratt School of Engineering.

In those exceptional cases where a problem remains unresolved through informal discussion, a formal procedure of appeal to the Senior Associate Dean of Trinity College or the Senior Associate Dean for Education in the Pratt School of Engineering is available. A student may initiate this more formal appeal procedure by bringing his or her problems with assurance of confidentiality, if requested, to the attention of the Senior Associate Dean of Trinity College or the Senior Associate Dean for Education in the Pratt School of Engineering, who will request information about the nature of the issue and about the earlier efforts made to deal with it. If the problem concerns a specific course, it should be directed to the appropriate senior associate dean in the college or school in which the course is taught.

Undergraduate Grade Review Procedure

A student who questions a final grade received in a course should first discuss the matter with the instructor within thirty days of receiving the grade. After meeting with the instructor, if the student still believes the instructor has assigned an inaccurate or unjustified grade, the student should discuss the matter with the Director of Undergraduate Studies. If no satisfactory resolution is reached, the student may make a formal complaint to the Director of Undergraduate Studies in the department or program concerned.

The DUS will present the case to the Chair of the department or program Director, and the two of them will review the case with the instructor involved. If the Chair or the DUS agrees with the instructor that there are no legitimate grounds for which to change the grade, the grade stands as recorded. If the DUS and Chair believe there are grounds to consider a change and the instructor is unwilling to change the grade, the DUS will notify the student that he or she may request a review of the case by writing to the Dean of Arts and Sciences or the Dean of the Pratt School of Engineering, depending on which college or school offered the course in question. A written request must be submitted before the end of the drop-add period of the semester following that for which the instructor recorded the grade.

The Dean will review the case and decide whether there are grounds to convene an ad hoc Committee for Review of Grade. If the Dean decides there are no grounds, then the grade is not changed.
If the Dean decides that there are grounds to proceed, the Dean will charge and convene an ad hoc Committee for Review of Grade. The committee shall consist of the Dean and two regular rank faculty members from the same division but not the same department (or from different departments in Pratt School of Engineering). The two faculty members of the committee are to be nominated by the appropriate faculty council, either the Executive Committee of the Arts and Sciences Council or the Engineering Faculty Council. This committee will then evaluate and review the case, and the Dean may initiate a grade change if that is the recommendation of the committee.

**Exclusion of Disruptive Students from a Course**

The successful conduct of courses depends upon a basic spirit of mutual respect and cooperation among the participants. If a student disrupts a class, in such a way that it seriously compromises the educational experience of the course for other students and/or prevents the instructor from accomplishing the goals of the course as outlined in the syllabus, the instructor may ask the student to leave the class meeting.

Afterward, it is expected that the instructor and the student will meet to discuss and prepare in writing the conditions under which the student may return to the course. If the disruptive behavior continues, the instructor may report the matter to the student’s academic dean. The academic dean will investigate the matter to determine whether the student should be referred to the Office of Judicial Affairs for consideration of formal charges of violation of university policies including “Classroom Disruption,” “Disorderly Conduct,” and/or “Failure to Comply.” If “probable cause” resulting in further judicial action is not found, the matter is to be referred to the student’s academic dean who will make a decision concerning the status of the student in the course.

If the student or the faculty member wishes to appeal the decision of the academic dean, an appeal is to be directed to the Senior Associate Dean of Trinity College, the academic appellate officer for the College. The decision of the senior associate dean in such a case is final. If the student is permanently excluded from the course, a notation of W will be recorded on the student’s academic record.

**Compliance with Academic Regulations**

Under no circumstances may students ignore official rules and requirements, as this is a breach of the Duke Community Standard and a “failure to comply” as described in the *The Duke Community Standard in Practice: A Guide for Undergraduates*. Students who ignore official rules and requirements will at the least have their registration for the next academic semester blocked by their academic dean until after the close of the last window of that registration period. They could also be subject to involuntary withdrawal for a period of two semesters and/or referred to the Undergraduate Judicial Board for possible disciplinary action.
Special Study Centers, Programs, and Opportunities
Campus Centers and Institutes

INTERNATIONAL AND AREA STUDIES PROGRAMS

Duke University Center for International Studies (DUCIS). Located in the John Hope Franklin Center for Interdisciplinary and International Studies, DUCIS supports a wide range of global thematic programs. Current areas of focus are globalization and equity, global health, human rights, global artistic production, and emerging regional powers. The center offers numerous opportunities for faculty members, graduate students, and undergraduate students to pursue the study of international issues, and to participate in DUCIS-organized conferences, seminars, and lectures.

Historically, DUCIS was instrumental in developing new area studies centers at Duke. In more recent years, it has concentrated on initiating new centers and programs with strong interdisciplinary and interregional emphases. Current efforts within DUCIS are the Concilium on Southern Africa and the secretariat of the Association of International Education Administrators. Two university seminars, one on global governance and democracy and the other on globalization and the artist, are administered by the center. The seminars, which meet every two to three weeks, bring leading scholars and practitioners to the campus. DUCIS serves as the administrative arm for the Office of the Vice Provost for International Affairs and Development.

In recognition of its commitment to international studies, DUCIS has been designated a Comprehensive National Resource Center for International Studies by the U.S. Department of Education. It is also the recipient of numerous grants from other federal agencies and from private foundations.

Each year, DUCIS welcomes visiting scholars, who are on campus from a few weeks to a full academic year. The center regularly hosts a Diplomat-in-Residence from the U.S. Department of State, who advises students seeking careers in the foreign service.

DUCIS provides substantial support for undergraduate education from its federal funding as well as from its own endowments. Faculty members receive curriculum development grants that underwrite organizing new globally thematic courses for undergraduates. DUCIS hosts international speakers with whom undergraduates can have direct contact. It sponsors film series, art exhibitions, readings, and performances. DUCIS funds, on a competitive basis, summer research support for undergraduate students and administers the Fulbright program for graduating seniors.

Asian/Pacific Studies. The Asian/Pacific Studies Institute supports and encourages the study of Asian societies within the Pacific region, with emphasis on China, Japan, and Korea. Courses offered cover a range of disciplines including Chinese, Japanese, and
Korean (language and literature); art history, business, cultural anthropology, history, law, political science, psychology, religion, and sociology. The institute provides support for visiting speakers and conferences, library resources and research clusters. Scholarships and fellowships, including FLAS fellowships, are available annually. Study abroad opportunities are available in China (Duke credit) and Japan (transfer credit). Majors are available at the undergraduate level through the International Comparative Studies program (East Asian concentration) or through the Department of Asian and African Languages and Literature. At the graduate level the institute offers a certificate and an M.A. in East Asian Studies.

**Canadian Studies Center.** The Canadian Studies Center administers the Canadian Studies Program, which offers courses introducing students to various aspects of Canadian life and culture. Courses and lectures in a wide range of disciplines in the humanities and the social sciences are designed to increase students' knowledge and understanding of Canada. Special emphasis is placed on Canadian problems and comparisons of Canadian and American perspectives. Concentrations in Canadian studies are described in the chapter "Courses of Instruction." Study abroad opportunities are available.

**Center for Latin American and Caribbean Studies.** The Center for Latin American and Caribbean Studies coordinates undergraduate and graduate education in Latin American and Caribbean Studies, and promotes research and dissemination of knowledge about the region. The center offers an interdisciplinary undergraduate certificate in Latin American Studies, which students can earn in conjunction with their bachelor's degree. Additional information about this certificate program can be found in the chapter "Courses and Academic Programs." Faculty associated with the center offer a wide range of courses in the humanities, the social sciences, Portuguese and Spanish. The center also sponsors visiting professors and lecturers from Latin America, a speakers series, conferences, and summer and academic year programs abroad. In addition, the center and the Institute for the Study of the Americas at the University of North Carolina-Chapel Hill sponsor the Consortium in Latin American Studies that includes occasional exchanges of faculty members from each institution and joint undergraduate and graduate student seminars as well as the annual Latin American Film Festival and the annual consortium conference. For more information consult the academic coordinator at Room 138 Franklin Center, Box 90254, Durham, NC 27708-0254; telephone (919) 681-3981; e-mail: las@duke.edu; Web site: [http://clacs.aas.duke.edu/](http://clacs.aas.duke.edu/).

**Center for Slavic, Eurasian, and East European Studies.** With the support of the U.S. Department of Education, this joint Duke-University of North Carolina Center coordinates interdisciplinary efforts primarily in the fields of Russian (including Soviet) and East European history, economics, political science, literature, linguistics and language training. Language instruction in Russian, Polish, and Ukrainian is available. The committee also sponsors visiting lectures, conferences, symposia, and films.

**Center for European Studies.** Faculty associated with the Duke-University of North Carolina Center for European Studies promote comparative research, graduate training, and teaching activities concerned with historical and contemporary European issues. Funded in part by the U.S. Department of Education, this program regularly sponsors campus-wide events, such as conferences on contemporary trends in European politics and society and recent developments in the European Union. It also supports faculty-student working groups, curriculum development, and library materials acquisition. A West Europe concentration is available for International Comparative Studies majors.

**CENTER FOR DOCUMENTARY STUDIES**

The Center for Documentary Studies (CDS) at Duke University teaches, engages in, and presents documentary work grounded in collaborative partnerships and extended fieldwork that uses photography, film/video, audio, and narrative writing to capture and convey contemporary memory, life, and culture. CDS achieves this work through academic
Courses, research, oral history and other fieldwork, gallery and traveling exhibitions, annual awards, book publishing, audio programs, community-based projects, and public events.

In its approach to education, CDS emphasizes a balance between individual artistic expression and community goals as students complete documentary projects in off-campus settings. Courses include instruction in documentary tools and techniques along with an examination of documentary traditions, practices, and ethics.

Interdisciplinary undergraduate courses in Documentary Studies are open to students in a variety of majors and fields who wish to incorporate documentary work into their university experiences. Additionally, students at Duke have the option of completing requirements for an undergraduate Certificate in Documentary Studies, which involves a minimum of six approved courses and completion of a final project. The program’s instructors include faculty members, visiting artists, and professional documentarians. As part of its undergraduate education program, CDS created and hosts the Lehman Brady Visiting Joint Chair Professorship in Documentary Studies and American Studies at Duke and the University of North Carolina at Chapel Hill, which brings a distinguished documentarian to teach on both campuses each year.

CDS also offers a non-credit certificate program in documentary studies in conjunction with Duke Continuing Studies and an increasing number of workshops and institutes for teachers, artists, activists, and other students of documentary methods. Additional opportunities for student involvement include volunteer work with CDS community-based projects, work-study positions, internships and fellowships, and a limited number of graduate assistantships.

For more information about CDS educational opportunities, check the Web site at: http://cds.aas.duke.edu/ or consult the Education Director, Center for Documentary Studies, 1317 W. Pettigrew Street, Durham, NC 27705; telephone (919) 660-3663.

DEWITT WALLACE CENTER FOR MEDIA AND DEMOCRACY

The DeWitt Wallace Center for Media and Democracy in the Terry Sanford Institute of Public Policy focuses on the study of communications, mass media, and journalism as they relate to a globalized and interconnected world. The center administers the Policy Journalism and Media Studies Certificate. The center’s approach to education emphasizes the analysis of issues relating to media and democracy. It also offers courses in effective media writing and production. Undergraduates interested in this field of study register for courses through the Department of Public Policy. Students enrolled in the certificate program gain a thorough understanding of the press in the policy-making process and engage in courses and internships to learn about the practice of journalism, while mastering the broader background of studies in public policy, politics, economics, history, and other liberal arts. Through the center, students have the opportunity to study with leading research scholars, practicing journalists and commentators, and media pioneers. In addition, the center sponsors the undergraduate Melcher Family Award for Excellence in Journalism. For further information about the center or the certificate, see www.pubpol.duke.edu/centers/dewitt/ or e-mail media@pps.duke.edu. See also the sections on the certificate program and on public policy studies in the chapter “Courses and Academic Programs.”

THE DUKE CENTER FOR CIVIC ENGAGEMENT AND DUKE ENGAGE

The Duke Center for Civic Engagement (DCCE) serves as the administrative umbrella organization for all undergraduate civic engagement activities at Duke. It exists as part of the Office of the University Provost. Coordination takes place with organizations that connect service and learning, including but not limited to the Office of Service Learning, the Hart Leadership Program, the Community Service Center, and various scholarship programs.

DukeEngage, coordinated by the DCCE, is a program for undergraduates who want to pursue a summer or semester of intensive field-based work that contributes to the public
good. Duke provides funding and administrative support to eligible students who want to address societal issues locally, nationally, or abroad. Students tackle real-world problems and develop valuable skills and self-knowledge that result from an immersive service experience. DukeEngage projects are local, national, or international in scope.

DukeEngage includes three different types of learning opportunities:

- those that are sponsored and organized by Duke, possibly through a class or existing service learning program;
- those that Duke coordinates with outside providers that specialize in organizing student internships or volunteer work in the U.S. and/or abroad;
- those that are initiated by students through grant proposals.

For more information, visit http://dukeengage.duke.edu.

ACADEMIC RESOURCE CENTER

The Academic Resource Center (ARC) is composed of three programs—the Academic Skills Instructional Program, the Peer Tutoring Program, and Services for Students with Learning Disabilities and AD/HD. The ARC was established in 1984 to offer learning assessment services and academic interventions to all undergraduate students. The staff consists of professionals from a wide range of disciplines who are dedicated to enhancing the academic lives of the students they serve. Services are designed to support students in their course work and to assist them to develop the broad academic skills necessary for success. All services are offered without additional university fees and carry no course credit.

The Academic Skills Instructional Program (ASIP). Students may arrange one-on-one college study skills conferences with an ASIP learning specialist. Students are encouraged to gain a greater understanding of their strengths and weaknesses and to develop strategies useful in managing the large amount of reading, writing, and problem-solving they are expected to accomplish at Duke. Areas to be explored may include time-task management, reading efficiency, note-taking, test-preparation, and test-taking. ASIP also offers special academic programs throughout the semester. Students should call the Academic Resource Center to schedule an individual appointment or for more information about special programming.

The Peer Tutoring Program (PTP) provides free peer tutoring in introductory-level mathematics, chemistry, physics, biology, economics, computer science, engineering, and languages.

Services for Students with Learning Disabilities and AD/HD. Duke University, through the Academic Resource Center, offers academic interventions to undergraduate students with diagnosed learning disabilities and attention deficit disorders. The clinical director reviews a student’s clinical documentation and evaluates the need for interventions and support within the context of the Duke undergraduate curriculum. Academic interventions and support services include, but are not limited to, the following: testing interventions, classroom interventions, classroom support, one-on-one academic support via the ASIP, and AD/HD academic coaching.

Students who wish to be evaluated for eligibility for academic interventions and/or support services may submit clinical assessment documentation directly to the Academic Resource Center or request that any party in possession of the documentation forward the materials to the ARC on their behalf. Submissions should be addressed to the Clinical Director. For more information, call the ARC at (919) 684-5917.

CONTINUING STUDIES

Academic Study. Local adult residents are encouraged to pursue academic study at Duke (1) as potential degree candidates, for those who have not been full-time college students for at least four years and are now resuming or beginning a bachelor's degree; (2) as non-degree students, for those with baccalaureates who now seek a sequence of
undergraduate credit courses; and (3) as students completing the last year of work towards a degree at another institution. These students are given academic counseling by the Office of Continuing Studies and Summer Session and are subject to most of the regulations set forth for degree candidates. Applications may be obtained from the Office of Continuing Studies (the Bishop’s House on East Campus or (919) 684-2621) and must be returned to that office, accompanied by a $35 application fee, by August 1 for the fall semester, December 1 for the spring semester, April 15 for Term I of Summer Session, and June 1 for Term II of Summer Session.

**Short Courses and Certificate Programs.** Short courses (noncredit) in the liberal arts are offered regularly throughout the year for those interested in personal enrichment or career advancement. Other offerings and certificate programs include teaching English as a second language, human resource management, managerial accounting, technical communications, and paralegal studies.

**Test Preparation Program.** Test preparation classes are offered in the fall and spring for the GRE, GMAT, and LSAT exams. These courses focus on the skills critical for a good test performance: test-taking techniques, time management, logical reasoning, and math and verbal skills.

**Nonprofit Management Program.** Students interested in the nonprofit sector or in community development are invited to explore the noncredit course offerings of this program. Taught by experts and practitioners, these short courses offer instruction concerning financial and resource management, management of personnel and volunteers, leadership development, and media relations.

For brochures on each program and for fuller information, write or call the Office of Continuing Studies and Summer Session, Duke University, Box 90700, Durham, NC 27708-0700; (919) 684-6259; learnmore@duke.edu; or [www.learnmore.duke.edu](http://www.learnmore.duke.edu).

**Specialized Programs**

**THE FOCUS PROGRAM**

The Focus Program offers first-year and second-year students a variety of interdisciplinary course clusters in the fall and spring semesters, each course is centered on a common theme. The Focus Program at Duke is distinct from other living/learning community programs in several respects. The primary concentration of each cluster encourages study in the social sciences, natural sciences, engineering, and humanities as well as analysis of the social, historical, economic, and political roots and problems of the topics. The broader interdisciplinary discussion courses impart a cross-disciplinary perspective to the course of study.

The Focus Program draws its offerings from courses taught by over sixty Duke University professors in twenty-nine cooperating departments and centers within two institutes and four schools. Courses have been designed specifically for the program to help place the topics chosen for specialization in a broad interdisciplinary and global perspective. Classes are small, interrelated, and mutually reinforcing; they provide opportunities for discussion and individualized research. The program is administered by a faculty director, program staff, and a faculty advisory committee representing the various clusters.

Since one of the aims of the Focus Program is to encourage the integration of academic life with residential life, participants of each cluster live in the same residence hall together with other first-year students. Focus Program participants may choose their own roommates and make other residential requests through the Residential Life and Housing Services office.

**Student Schedules.** The Focus Program requires participants to enroll in two seminar courses from the three or four courses offered within the assigned cluster and a half-credit discussion course. Remaining elective courses are chosen by the student according to his/her academic interests. Courses in the program satisfy the general curriculum first-year...
seminar requirement. Courses will also fulfill other general curriculum requirements (Areas of Knowledge and Modes of Inquiry).

Grants and Awards. The Focus Program runs a program of follow-up grants for participants. These grants are intended to help students continue the experience through research and projects with a faculty mentor. Applications are accepted each semester for projects conducted during the following semester or during the summer.

Current Focus Program information may be found on the program Web site: http://focus.duke.edu. Questions and comments may be directed to the Focus Program office, 226–227 Academic Advising Center, (919) 684-9370, fax: (919) 684-4515, e-mail: focus@duke.edu.

RESERVE OFFICER TRAINING CORPS

Duke University and the military services cooperate in offering officer education programs to provide opportunities for students to earn a commission in the United States Air Force, Army, Navy, or Marine Corps. These programs are described below, and detailed information on scholarships, entrance requirements, and commissioning requirements is available from the offices of the Department of Aerospace Studies (Air Force), the Department of Military Science (Army), and the Department of Naval Science (Navy and Marine Corps). Courses offered in these departments are described in the chapter "Courses of Instruction" in this bulletin.

The Air Force Reserve Officer Training Corps (AFROTC). AFROTC selects, trains, and commissions college men and women as officers in the U.S. Air Force. AFROTC offers a four-year and a two-year curriculum leading to a commission as a second lieutenant. The four-year program consists of both the General Military Course (GMC), a course sequence taken during the freshman and sophomore years, and the Professional Officer Course (POC) taken during the junior and senior years. Entry into the POC is competitive and requires successful completion of a field-training encampment during the summer between the sophomore and junior years.

The GMC is open to freshmen and sophomores. Students who complete both the freshman and sophomore years of the program and successfully compete for entry into the POC will attend a four-week training encampment. All other successful POC applicants will attend an extended encampment. Between the junior and senior years, POC cadets are given the opportunity to volunteer for advanced training in a variety of different areas.

Students may compete for one through four year scholarships. These scholarships pay up to full tuition, books, and a monthly tax-free stipend of $300-$500. All members of the POC receive the nontaxable stipend. Upon graduation all cadets are assigned to active duty with the U.S. Air Force for a period of at least four years. Direct inquiries to the Department of Aerospace Studies, 265 Trent Building, (919) 660-1860 or visit www.duke.edu/afrotc.

The Army Reserve Officers' Training Corps (AROTC). Army ROTC provides students of strong character with an opportunity to develop themselves as scholar/athlete/leaders and earn a commission as an Army officer. Two programs are available, the three- or four-year progression program and the two-year lateral entry program.

A three- or four-year program consists of the Basic Course (freshman and sophomore years) and the Advanced Course (junior and senior years). Direct entry into the Advanced Course (a two-year program) is possible by attending a (4) week Leadership Training Course (LTC) during the summer. Students wishing to join the two-year program must confer with the Department of Military Science not later than March 1 of their sophomore year in order to qualify for a summer internship and two-year scholarship. There is one mandatory summer training requirement, Leadership Development and Assessment Course (LDAC), which takes place over a five-week period between the junior and senior years. All uniforms and some texts are provided.

Upon graduation and acceptance of a commission, the service obligation may be fulfilled on active duty, in the Army Reserve, or in the Army National Guard, as directed.
by the Secretary of the Army. At the beginning of the senior year, cadets submit a preference statement concerning the method by which they wish to fulfill their service obligation and the specialty in which they desire to serve. A request to delay the fulfillment of the service obligation in order to attend graduate or professional schooling is also possible. Cadets are encouraged to compete for Army ROTC scholarships, which pay full tuition and fees, a $1,200 textbook, and equipment allowance, and $300-$500 per month for each month in school (up to $5,000 per year). Nonscholarship Advanced Course cadets also receive the $300-$500 monthly stipend. All of the above benefits are tax-free.

Detailed information is available from the Department of Military Science, 06 West Duke Building, East Campus, Box 90752, (919) 660-3090, or (800) 222-9184.

The Naval Reserve Officer Training Corps (NROTC). The Department of Naval Science offers students the opportunity to become Navy and Marine Corps officers upon graduation. Selected students may receive up to four years of tuition, fees, uniforms, and textbooks at government expense under the auspices of the Scholarship Program. In addition, scholarship students receive subsistence pay and summer active duty pay of approximately $3,000 a year. Each summer they participate in four weeks of training either aboard ship or at naval shore facilities to augment their academic studies. A minimum of four years of active duty service as a reserve officer is required upon graduation.

Nonscholarship students may be enrolled in the College Program. They take the same courses and wear the same uniform, but attend the university at their own expense. Uniforms and naval science textbooks are provided by the government.

College Program students may compete for scholarship status through academic performance, demonstrated aptitude for military service, and nomination by the Professor of Naval Science. Students in either program may qualify for a commission in the Marine Corps through the Marine Corps Option Program. Students seeking further information on the NROTC program may call or visit the Department of Naval Science, (919) 660-3700, Trent Hall, Trent Drive, Room 361.

**AGREEMENTS WITH OTHER UNIVERSITIES**

**Neighboring Universities.** Under a plan of cooperation, the interinstitutional agreement among Duke University and the University of North Carolina at Chapel Hill, North Carolina State University at Raleigh, North Carolina Central University in Durham, the University of North Carolina at Charlotte, and the University of North Carolina at Greensboro, a student regularly enrolled in Duke University as a degree-seeking student and paying full fees may enroll for one approved course each semester at one of the institutions in the cooperative program unless an equivalent course is offered at Duke in the same academic year. Under the same conditions, one interinstitutional course per summer may be taken at a neighboring institution participating in this agreement provided that the student is concurrently enrolled at Duke for one full course credit. This agreement does not apply to contract programs such as the American Dance Festival or to study abroad programs.

Approval forms for courses to be taken at these neighboring institutions may be obtained from the offices of the academic deans and the University Registrar. Forms are also available online at the Office of the University Registrar Web site, in the “students” section. Only those courses not offered at Duke will be approved. Approval must be obtained at Duke from the Director of Undergraduate Studies of the subject of the course and the student’s academic dean. Credit so earned is not defined as transfer credit since grades in courses taken under the interinstitutional agreement are entered on the official record and used in determining the grade point average. The courses may be eligible for Area of Knowledge and Modes of Inquiry coding. The student pays any special fees required of students at the host institution.

Courses taken at the University of North Carolina at Chapel Hill by Duke students in the Robertson Scholarship Program (a joint scholarship program for students at Duke and
Special Study Centers, Programs, and Opportunities

the University of North Carolina at Chapel Hill) are interinstitutional courses. However, the restriction on the number of courses and the kind of courses (i.e., those not offered at Duke) permitted does not always apply. Robertson Scholars should refer to program materials for specific regulations.

Domestic Exchange Programs. Trinity College has exchange programs with two domestic institutions: Howard University in Washington, D.C., and Spelman College in Atlanta, Georgia. Students may study for a semester at either institution while students from these institutions enroll for the same period at Duke. More information about this program is available in 02 Allen Building.

DUKE IN NEW YORK ARTS AND MEDIA PROGRAM

The Duke in New York Arts and Media Program is a fall-semester, off-campus study program for students wishing to engage in an intensive study of the arts that includes an internship. The program has four components, each earning one Duke credit: two seminars taught by faculty from Duke, an arts internship, and an elective course at New York University. The Summer Internships in the City program runs through Summer Sessions I and II and has two components, each earning one Duke credit: one seminar taught by faculty from Duke during Summer Session I, and an arts internship that will run the length of both Summer Sessions. The Summer Internships in the City program does not include an NYU course. A substantive paper is required. The internships may be in the fields of visual or performing arts, museum and gallery management, literary arts, film and television, and related fields. For more information, consult Professor Marianna Torgovnick, faculty director.

DUKE IN NEW YORK FINANCIAL MARKETS AND INSTITUTIONS PROGRAM

The Duke in New York Financial Markets and Institutions Program introduces students to the financial services industry. They will gain firsthand knowledge of financial regulations and institutions both through coursework and personal interactions with Duke Alumni in the industry. The program is offered in the spring of each year. The program is a joint venture between the Department of Economics and Markets & Management Studies. It incorporates four full-credit courses taught in NYU's Kimmel Center, group business consulting projects, mentoring from Duke Alumni in the industry, guest lectures and panels, visits to trading floors, shadowing experiences, and socials hosted by financial institutions. It aims to give students interested in finance a fuller picture of the opportunities available—academic, public and private. Students should leave the program with practical knowledge in the finance field, hands-on experience with a business consulting project, and professional contacts in their area of interest. Moreover, students will have a sense of the community of Duke Alumni and other professionals in the finance industry. For more information please go to: http://econ.duke.edu/DukeinNY/

DUKE IN LOS ANGELES PROGRAM IN MEDIA ARTS AND INDUSTRIES

This interdisciplinary, spring semester program, sponsored by the Film/Video Digital program, is open to all students. It should particularly appeal to those interested in the film, television, and music recording industries as well as contemporary art and entertainment law. Program participants receive four course credits. They take two courses at the University of Southern California (USC): one is in the School of Cinema-TV, or the Annenberg School for Communication, or the Thornton School of Music; the second is a USC elective course. They also take two Duke courses: a required seminar taught by the Duke faculty director (Film/Video/Digital 197S: Special topics in the United States Culture Industries) and a 15-hour/week internship (Film/Video/Digital 112S: Media Arts Internship in Los Angeles) which is chosen by the student and requires a substantive internship paper. Students are selected via applications submitted before September 25 in
the fall semester. Additional information and materials are available on the Web at: www.duke.edu/web/film/dula. Consult with Carolyn Leith, administrative coordinator, at (919) 660-3030 for an application and more information.

DUKE UNIVERSITY MARINE LABORATORY
(Nicholas School of the Environment and Earth Sciences)

The Marine Laboratory of Duke University, located on Pivers Island in the historic town of Beaufort, North Carolina, is a 15-acre campus with research laboratories, classroom buildings, dormitories, a dining hall, and boats. The situation of the Duke Marine Lab provides easy access to marine habitats, including coastal settings with contrasting degrees of development. The Rachel Carson National Estuarine Research Reserve and undeveloped Outer Banks stretch to the east of Pivers Island; to the west is Bogue Banks, a spit of heavily developed land. Shallow waters of the Pamlico, Albemarle, and Bogue Sounds are rich with estuarine life and fringed by expansive salt marshes. The Marine Lab serves students in the biological and environmental sciences as well as those in social science, humanities, and engineering. Residential undergraduate courses are offered year round (Fall, Spring, Summer Sessions I and II). Fall and Spring courses include Beaufort Signature Courses, which offer students opportunities for extended travel with Duke faculty to places like France, Panama, Singapore, and Trinidad. Small class sizes and an island setting facilitate rewarding student-faculty interactions. For additional information and enrollment forms, contact the Academic Services Office, Duke University Marine Lab, 135 Duke Marine Lab Rd., Beaufort, North Carolina 28516 (252-504-7502); e-mail: ml_admissions@nicholas.duke.edu or visit www.nicholas.duke.edu/marinelab. Duke students in good standing are automatically accepted to the Marine Lab’s academic programs; an application is required so that student records can be appropriately coded.

UNDERGRADUATE RESEARCH SUPPORT OFFICE

Duke University actively strengthens connections between its undergraduate students' academic experience and the research endeavors of its faculty scholars and investigators. The Undergraduate Research Support (URS) Office in Trinity College promotes student learning through research by increasing the number and diversity of opportunities for students, by fostering mentoring and by supporting Trinity College's curriculum requirement for all students. The office provides assistantships and grants through the academic year, offers competitive research fellowships for summer research and organizes summer research programs in multiple disciplines. For detailed information, visit http://www.aas.duke.edu/trinity/research.

STUDY ABROAD (Office of Study Abroad)

A Duke student may earn credit for approved work completed during the academic year at a foreign university or for an approved program abroad sponsored by Duke or by another approved American college or university in the fall, spring, and summer. No pre-matriculation credit will be awarded for college course work completed on a study abroad program undertaken prior to matriculation at Duke. Approved non-Duke programs earn transfer credit. To receive the maximum amount of transfer credit at Duke—generally four course credits for a full semester, eight for a full academic year, two for a summer—a student is expected to take a full, normal course load, as defined by the other institution involved. The responsible Duke departments, however, make the final decision on the final number of credits transferable. Students attending certain British, Irish, and Japanese universities for the full academic year can transfer a maximum of eight courses. However, at certain British, Irish, and Japanese universities which are on the trimester system, only three course credits
may be transferred for the single fall trimester. Students attending such universities in the
spring are required to attend the two remaining trimesters and may transfer a maximum of
five credits. No additional study abroad transfer credit will be awarded for a course overload.

International students may receive a total of two domestic transfer credits for study in
their home country. They will be given a personal leave of absence.

A student who wishes to receive credit for study abroad should take into account the
following criteria established by the faculty and administered by the Faculty Committee on
Study Abroad:

1. a scholastic grade point average of at least 2.7 for semester or academic year study
   abroad—a student lacking this average may petition the academic dean responsible
   for study abroad if there are unusual circumstances;
2. certification, when applicable, from the foreign language department concerned,
   that the student has an adequate knowledge of the language of the country in which
   study is pursued;
3. approval, obtained before leaving Duke, of the appropriate directors of
   undergraduate studies for the courses to be taken abroad, as well as approval of
   the program and the courses by the dean responsible for study abroad and by the
   student’s academic dean.

A student on academic or disciplinary probation or one who does not meet academic
continuation requirements will not be permitted to study abroad, regardless of the student’s
acceptance in a program. Students who have been dismissed for any disciplinary reason must
complete at least one regular semester with no further infractions on campus prior to being
eligible for study abroad. Similarly, students who have been dismissed for any academic
reason must successfully complete a full semester on campus prior to being eligible for study
abroad.

Transfer credit will be awarded for work satisfactorily completed in Duke-approved
programs abroad when the conditions outlined are met. Transfer credit courses may, upon
evaluation, carry Area of Knowledge codes. Modes of Inquiry codes are only available to
transfer courses through a petition process upon return.

When studying abroad, only students who study abroad for the full
academic year in the same program are allowed to enroll in an independent
course at a foreign institution and only in the second semester of the study
abroad sojourn. Detailed information about independent study while abroad may
be found at http://studyabroad.duke.edu/policies.html#independentstudy and in the
Study Abroad Handbook.

To determine eligibility to earn recognition for honors such as Dean’s List while
studying abroad, consult the section on Academic Recognition and Honors or your academic
dean. Arrangements are normally made for students to register, while abroad, for the term
in which they plan to return. Seniors planning to spend their final semester abroad are subject
to the residence requirement and may face postponed graduation because transcripts from
abroad are often delayed. Students studying abroad on semester programs not administered
by Duke will be charged a study abroad fee. See the Financial Information chapter for
information concerning fees for studying abroad on Duke-approved semester programs.

Semester and Academic Year Programs

Duke currently administers and supervises a number of its own study abroad
programs. In these programs, Duke faculty are directly involved and the courses receive
Duke credit, as courses on campus do, unless otherwise noted. Information on these
programs is available in the Office of Study Abroad, 2016 Campus Drive, and on the
Web at http://studyabroad.duke.edu. The Duke-administered programs are as follows:

China, Beijing. In cooperation with Yunnan Normal University, Duke conducts a spring
semester program in Kunming, Yunnan Province. Participants must have at least one year
of Chinese language prior to departure. While in China, they enroll in two Chinese language
courses and two non-language courses. Students live in international student dormitories. A host family option is available for students who have had more than two years of Chinese before the start of the program.

Costa Rica. This fall or spring semester program is co-sponsored by Duke and the Organization for Tropical Studies. Students take four core courses in tropical biology, ecology, and Spanish language. The program stresses full immersion in hands-on scientific and language-cultural studies. Students live for three weeks with families, and the remainder of the semester in dormitories at three research stations.

Ecuador, Quito. This semester or academic year interdisciplinary program in Latin American and Andean studies, called “Duke in the Andes,” is based at the Pontificia Universidad Católica del Ecuador and the Universidad Politécnica Salesiana. Students take one core course designed especially for the program, and select their remaining courses from offerings at the two host universities. Students live with families.

France, Paris. Duke offers a semester or academic year program in Paris in conjunction with Emory University and Cornell University. The language of instruction is French. Applicants must have completed French through the 100-level or equivalent, with an overall B grade average. Students live in French households, foyers, and student apartments. Students earn Duke credit for program-administered courses and transfer credit for courses taken at the French universities.

Germany, Berlin. Duke students study at the Humboldt University of former East Berlin (fall) and at the Free University of former West Berlin or the Technical University of Berlin (spring). In the fall semester they take specially arranged courses in German language, the humanities, and the social sciences for Duke credit. In the longer spring semester, up to five courses may be taken, up to two of which may be transfer credit chosen from the regular course offerings of the Free University and/or the Technical University of Berlin. The fall term is open to beginners, although at least one year of German is recommended. The spring term requires two years of German or the equivalent. Engineering students with only one year of German are eligible for the spring program if they take the special Intensive German for Engineers class in January, for an additional course credit.

Italy, Florence. A consortial program offered jointly by Duke, the University of Michigan and the University of Wisconsin-Madison. Florence and Italy are the focus of this program, which typically offers core courses in Italian art history, architecture, and Italian language and literature. Supplemental courses have included music, political science, history, film, and theater. Instruction by way of classroom meetings and on-site lectures in and around Florence is augmented by day-long trips to such cities as Siena and Pisa, and two weekend excursions to Rome and Venice. Previous Italian language study is encouraged, but not required. Most courses are taught in English. Students live, eat, and take courses at the 16th-century Villa Corsi-Salvati in Sesto Fiorentino, located six kilometers from the center of Florence. Duke is a partner in this program only in the fall term.

Italy, Rome. As the administering institution of the Intercollegiate Center for Classical Studies in Rome, Duke University may send classics majors and other students with strong classical interests for admission to a semester's work at the center, usually in the junior year. Instruction is offered in Greek, Latin, ancient history, ancient art, and archaeology. Some scholarship help is available.

Italy, Sicily. The University of Catania, in Sicily, is the site of a second ICCS classical studies program. The focus, as in Rome, is on classical languages as well as on local manifestations of history and civilization in the ancient Mediterranean world. There are three mandatory courses: Mediterranean Cultures, Greek or Latin (intermediate and advanced), and Italian language. For the fourth subject, students may take either a second classical language or art history. Scholarship help is also available for this program. Students are housed in a University of Catania residence hall.

Italy, Venice. This program is based at Venice International University, located on the island of San Servolo. VIU is an association of universities from around the world: Università Ca' Foscari di Venezia, Università IUAV, Duke University, Ludwig Maxmilians Universität (Munich, Germany), Tel Aviv University (Israel), Universitat Autònoma de
Barcelona (Spain), Waseda University (Tokyo, Japan), Tsinghua University (Beijing, China), Tilburg University (the Netherlands), and Boston College. Faculty from all partner universities offer courses at VIU, providing students from all partner universities the opportunity to take courses from a variety of international scholars. Previous Italian language study is encouraged but not required. Most courses are taught in English. Students live in dormitories on the island of San Servolo.

Russia, St. Petersburg. This fall or spring semester program is offered for undergraduate and graduate students who have studied Russian for two years at the college level. Students are enrolled in the State University of St. Petersburg and have the opportunity to improve their language skills in a living-learning environment. All courses are taught in Russian. Students are housed with families.

Scotland, Glasgow. The Sanford Institute of Public Policy Studies offers departmental majors the opportunity to study during the fall semester at the University of Glasgow. Students live on campus and take the program's special seminar in public policy in addition to three transfer credit electives from the general university curriculum. Students live in residence halls. The program is also open to students in other majors.

South Africa. This fall and spring semester program is co-sponsored by Duke and the Organization for Tropical Studies. Students take four core courses in South African ecosystems, field research, conservation, and history and culture. The program is based in Kruger National Park and includes one extended field trip to Cape Town.

Spain, Madrid. Duke University offers a semester or academic year program at the Universidad San Pablo in Madrid. The program aims at improving participants’ Spanish fluency and deepening their understanding of Spain and its many cultures within a global context. Subject areas for courses include literature, art history, economics, anthropology, history, and political science. The language of instruction is Spanish. Students live with host families.

Turkey, Istanbul. The interdisciplinary curriculum of this spring semester program, based at Bogazici University, introduces cultural, historical, and religious issues emerging at the intersection of Europe and the Middle East, with particular attention to the unique position of Turkey within the global context. Students are required to take one course with the Duke program director and one course in Turkish language. The remaining two classes are electives chosen from the departments of History, Philosophy, Sociology, Anthropology, Engineering, Economics, and Political Science, among others. Students are housed in the newest and largest Bogazici University dormitory, in suites shared with Turkish and other international students.

A number of approved programs sponsored by other institutions are also available to Duke students for study abroad. Further information concerning semester and academic year programs may be obtained at the Office of Study Abroad, 2016 Campus Drive, or on the Web at http://studyabroad.duke.edu. Duke-approved programs sponsored by other institutions are not administered by Duke University and all credits earned are transfer credits. To ensure credit from these programs, and to retain enrollment status at Duke, all Trinity College and Pratt School of Engineering students are responsible for following the procedures and meeting the deadlines set forth in materials available at 2016 Campus Drive or on the Web. In all cases, the dean for study abroad must be informed in advance about a student's plans. Students who do not follow the proper procedures will not be guaranteed credit for their study abroad experience.

Duke Summer Programs Abroad

The Office of Study Abroad, in cooperation with several university departments, provides many opportunities for students to study abroad during the summer while earning Duke University credit. Information about Duke summer programs abroad and about the
time they will next be offered can be obtained from the Office of Study Abroad, 2016 Campus Drive. The following programs have been offered in previous years.

**Australia, Sydney.** This two-course, six-week program focuses on Australian environmental studies and is based in Sydney at the University of New South Wales. One course focuses on environmental/ecological issues and is taught by a professor in the biology department of Duke University, who also directs this program. The second course is an elective selected from several UNSW options. Students are housed in accommodations of the University of New South Wales. The program includes excursions to locations such as the Northern Territory, Alice Springs, Lady Elliott Island, and the Great Barrier Reef.

**Belgium/Netherlands.** This two-course, six-week program focuses on a contextual study of Late Medieval, Renaissance, and Baroque art and culture in Belgium and the Netherlands. The double-credit course, *History of Netherlandish Art and Visual Culture in a European Context*, is taught in English by a Duke faculty member with Dutch and Flemish guest lecturers, and art specialists. The program is based for the first two weeks in Amsterdam (Netherlands) and for the remaining four weeks in Ghent (Flanders). Participants visit numerous Dutch and Flemish cities and museums. Accommodations are in hotels.

**Brazil, Rio de Janeiro.** This two-course, six-week program focuses on intensive Portuguese language and Brazilian culture study. The first five weeks are based in Rio de Janeiro and hosted by the Advanced Program in Contemporary Culture of the Federal University of Rio de Janeiro. The program features an excursion to Salvador, Bahia. Students live with host families.

**China, Beijing.** This two-course, eight-week program, based at Capital Normal University, provides students with the opportunity to learn the equivalent of one year of Chinese in a single summer program. Participants must have at least one year of Chinese language to be eligible for the program. Students are housed in dormitories.

**Costa Rica.** The Office of Study Abroad, in collaboration with the Organization for Tropical Studies (OTS), offers two one-course, four-week summer programs in Costa Rica. The Tropical Biology Program provides field-based, hands-on instruction of tropical biology at OTS’s three field stations—Las Cruces, Palo Verde, and La Selva—each located in a distinct ecosystem. One year of college-level biology is required. The Ethnobiology Program is based at the OTS station Las Cruces, home of the Wilson Botanical Gardens. Two semesters of college-level biology and one semester of Spanish or the equivalent are required.

**France, Paris.** This two-course, six-week program provides the opportunity to take Duke courses in Paris. The language of instruction is French. Applicants must have completed French 76 or the equivalent. Students live in pensions or foyers. Optional homestay provided for students interested in greater language immersion.

**Germany, Berlin.** This six-week, two course program is offered in cooperation with Rutgers University and features faculty from both institutions. In addition to German language courses ranging from elementary to advanced levels, content courses in English, which have a substantial focus in German politics, history, and culture, are offered. German majors are encouraged to enroll in two German language courses. Non-German studies students may enroll in two elective courses taught in English, or do one course in German and one in English, the most popular option.

**Ghana, Accra.** Based at the University of Ghana at Legon, just outside Accra, the program includes extensive field trips and excursions to rainforests and the dry northern savannah, coastal fishing towns, and rural farming villages; tours to a former slave fort at Cape Coast and Elmina; and museums and craft villages near Kumasi. The six-week, two-course program provides a comprehensive look at Ghanaian culture and politics. A major research project based on independent fieldwork is required. Accommodations are in hostels, hotels, and with host families.
Greece, Athens and Islands of the Aegean. This four-week, one-course program offers a study of the Classical Greeks’ pronounced emphasis on the rational aspect of human nature which enabled them to lay the foundations for subsequent intellectual developments in western thought. Concentration is on Athens, northern and southern Greece, as well as the Cycladic Islands. Accommodations are in hotels and onboard ships.

Italy, Rome. This one-course, four-week program in Rome explores the history and culture of Rome and includes visits to historical sites and museums, walking lectures, and readings. The course examines the history of the city from the earliest times through the Baroque and modern periods. The course is taught in English. Students reside at the Intercollegiate Center for Classical Studies, and in hotels during field trips that take them away from Rome. This program is offered every other year.

Italy, Venice. This two-course, six-week program generally focuses on Venetian culture, history, art, and literature. Courses are taught in English under the direction of a Duke professor. Museum visits, theater and musical performances, and local festivals may be included. Students live in a dormitory of the Venice International University on San Servolo Island.

Mexico, Cholula. Duke students are able to complete one full year of elementary or intermediate Spanish in this six-week summer program in Mexico. Both beginning and intermediate levels are double courses and count as two course credits each. Immersion into Mexican society is accomplished by exposure to both language and Hispanic culture. The program includes excursions to such famous archaeological sites as Oaxaca and Teotihuacan, and museum visits in Mexico City. Accommodations are with families (intermediate students) and in dormitories (beginning students).

Russia, St. Petersburg. This program offers two Russian language and culture courses in St. Petersburg. Russian language study at different levels is offered. Classes are taught at St. Petersburg State University by faculty members of the university. A minimum of two semesters of college-level Russian is suggested. Students are housed in an apartment-hotel.

Spain, Madrid. This two-course, six-week program in Madrid offers advanced Spanish students further language training as well as the opportunity to study Spanish culture, history, and politics. Sample excursions include Barcelona, Salamanca, Toledo, Segovia, Granada, Sevilla, and Cordoba. Both courses are conducted in Spanish, and students live with Spanish families. Applicants must have completed Spanish 76 or the equivalent.

Switzerland, Geneva. This two-course, six-week program in Geneva focuses on globalization issues in business and international management. Students are housed in dormitories at the Cité Universitaire of the University of Geneva. The courses are taught in English. A field trip to Berlin is also included in this program.

Turkey, Istanbul. For centuries Istanbul has been a major center to all three religions of the Judeo-Christian-Islamic tradition. As the only city located between Asia and Europe and capital of the Roman, Byzantine, and Ottoman Empires, it is the setting for a four-week, one-course summer program focusing on comparative religion. The program features a one-week excursion to sites in western Turkey and along the Aegean coast. Accommodations are in dormitories.

United Kingdom, London--Drama. This two-course, six-week program offers the opportunity to study drama using the resources of London’s theaters in conjunction with study of dramatic texts. The courses are Theater in London: Text, and Theater in London: Performance. Both courses are taught jointly by faculty of Duke and a distinguished group of British theater practitioners from London. The group attends over 20 theater productions in London and Stratford-upon-Avon. Accommodations are in a dormitory.

United Kingdom, Oxford. This six-week, two course-credit program at New College, University of Oxford, utilizes the Oxford tutorial system of education supplemented by lectures given at the University of Oxford's International Graduate Summer School by noted
British scholars. Areas of study include Shakespeare, Victorian literature, British history, politics and government, classical and contemporary political philosophy, and science, ethics and society.

Special Summer Programs

DUKE SUMMER FESTIVAL OF THE ARTS

The Duke Summer Festival of Creative Arts is administered jointly by the Summer Session Office, Duke Performances, the Sarah P. Duke Gardens, and the University Union. The festival provides an exciting, artistically stimulating environment for the campus and community. The Ciompi Quartet, Duke's well-known chamber music ensemble, will spearhead a chamber music series with guest artists. Other special events will include outdoor family events, carillon recitals, dance performances, film series, and programs in the Duke Gardens Amphitheater.

THE AMERICAN DANCE FESTIVAL

The six-week program offers a wide variety of classes, performances, and workshops. For a catalog, write to the American Dance Festival, Duke University, Box 90772, Durham, North Carolina 27708-0072, or telephone (919) 684-6402.
Campus Life and Activities
Student Affairs

The mission of Duke Student Affairs is to support the optimal growth of our students in achieving their educational goals and to provide services that enhance their intellectual, social, cultural, and physical development. The division collaborates with students, faculty, staff, parents, and others in the delivery of key services, support, and programming. The division is critically engaged in many aspects of students’ lives including the residential experience, leadership development, civic engagement, and health. For more information, see the Web site at: http://studentaffairs.duke.edu.

Residential Life

Duke enjoys a long tradition as a residential university and supplements the formal academic education of students by providing a comprehensive residence life program. A primary goal is to facilitate the creation of residential communities in which there are common interests, free-flowing exchange of ideas, relaxed social activities, and active recreational opportunities. Students, faculty, and staff work cooperatively to provide programs and activities in keeping with these guiding principles. Leadership opportunities, faculty dinners/discussions, community service opportunities, and intramural sports are but a few of the offerings in which students may choose to become involved.

First-year students are required to live in East Campus university residence halls. After the first year, students will reside in West Campus residence halls. After the second year, students may also elect to live in Central Campus apartments. About 82 percent of the undergraduate student body lives on campus each year, a clear indication of student appreciation for and satisfaction with the residential experience. Students enrolled beyond their fourth year and those who attend part-time are not eligible for university housing.

First-Year-Student Residence Halls. First-year students reside on East Campus in first-year student houses, all of which are coed. A faculty member lives in-residence in all but two of the first-year houses. In addition, four professional staff members (Residence Coordinators) live on East Campus. First-year students are assigned randomly to their residence hall. Within the residence halls, single, double, or triple rooms are available.

Upperclass Residences. Upperclass students live in coed residence halls on West Campus, and in the Central Campus Apartments. West Campus residence halls are organized into six quadrangles, each administered by a professional staff member (Residence Coordinator) who resides within the quad. Quads serve as the organizational framework for residence hall student governance, social and recreational activities, and various academic services and events. Each quad also features an array of selective living groups, learning communities, and academically sponsored theme groups. Selective groups include residential fraternities and social communities such as Brownstone and Wayne Manor. Learning communities include Performing Arts and West Campus Wellness. The Arts Theme House, SHARE, and Prism are among the academically sponsored theme communities. For a current list of residential groups and communities, see the Web site at: http://rlhs.studentaffairs.duke.edu/communities. Within all upperclass houses, except those located in Edens and the Keohane Quads, triple rooms are available.

Central Campus provides another housing option for juniors and seniors—a community of university-owned and operated apartments which accommodate about 1,000 undergraduate students.

University housing includes all residence halls as well as Central Campus Apartments. All students are required to live on campus for their first three years, with freshmen living in residence halls on East Campus and sophomores living in residence halls on West Campus. Juniors must choose to live either in West Campus residence hall rooms or in Central Campus apartments, space permitting. Seniors are free to reside on campus, space permitting, or off campus in one of the numerous private housing options available near campus. Semesters taken in “study away” programs are applied to the three-year residency requirement. Eligible students who choose to live off-campus may retain their resident status.
and eligibility for university housing if they follow the proper procedures as published by Residence Life and Housing Services. The university provides free on-campus bus service, connecting East, West, and Central campuses.

All residence halls have resident assistants who live in-house and are overseen by professional staff in Residence Life and Housing Services. These graduate and undergraduate students have broad responsibilities in the residence halls which include advising the house leadership, serving as resource persons for students, and reinforcing behaviors congruent with the Community Standard.

A quad council is elected from constituent members on all three campuses to perform the dual roles of programming and governance. The primary purpose of the council system is to establish and sustain a vibrant residential community, facilitated by a rich blend of intellectual and co-curricular pursuits. All residential students pay fees as a means of supporting the programming initiatives designed for the enrichment of the community in which they live. Representatives from each council comprise the Campus Council which serves as the governing body to support and provide direction for residential life.

**Residence Hall Programming.** Educational and cultural programming is planned and presented throughout the year in the residence halls through the cooperative work of Residence Life and Housing Services, Trinity College of Arts and Sciences, the Pratt School of Engineering, and resident students. In all but two of the first-year residence halls, faculty members live in the halls and participate in house activities during the academic year. Faculty members interact regularly with living groups in an effort to facilitate engaging and intellectually stimulating endeavors within the residence halls. There are a number of seminar rooms located in both east and west residences. The goals of these various residentially based programs are to enhance the quality of intellectual and social life for the residents on campus, to facilitate student-faculty interaction outside the formal classroom setting, and to develop greater sense of community within the individual residence halls as well as within the greater university.

**Dining Facilities**

All students living in campus residence halls are required to participate in a dining plan. Several dining plans are available that allow a student to make purchases in the various dining locations by accessing a prepaid account carried on the student identification card, or DukeCard (see the section on food and other expenses in the chapter "Financial Information"). First-year plans include both board and debit accounts; plans for upperclassmen are debit accounts.

In the West Union Building on West Campus, The Great Hall offers a wide variety of foods, all in one location. The Loop Pizza Grill offers gourmet salads, California- and Chicago-style pizza, and burgers. Subway serves sub sandwiches, ice cream, and beverages. Chick-fil-A offers fried and grilled chicken sandwiches, salads, soft drinks, desserts, and lemonade in addition to burritos made by Cosmic Cantina. Alpine Bagels and Brews has bagels, sandwiches, assorted coffees, fresh-squeezed orange juice, yogurt, salads, and desserts. Just off the Bryan Center plaza, Pauly Dogs offers hot dogs, soft drinks, and assorted snacks. In the Bryan Center, also on West Campus, the Alpine Atrium serves bagels, assorted coffees, sandwiches, fresh-squeezed orange juice, smoothies, salads, and desserts. The Armadillo Grill offers a variety of Tex-Mex options. Our 24 hour McDonald’s features a full McDonald’s menu for breakfast, lunch, and dinner. With its spacious seating and comfortable sofas, it is a one-of-a-kind facility, unlike the typical McDonald’s at the mall. Other West Campus operations include Café La Balance (soups/sandwiches), located at the Law School, and the Sanford Deli in the Sanford Institute for Public Policy. Quenchers Juice Bar in the Wilson Center offers refreshing drinks that complement a healthy lifestyle. The Perk (Bostock Library) is a traditional coffee bar offering coffees, sandwiches, and pastries. Tommy’s Rubs & Grubs in West Edens Link serves BBQ ribs, chicken, and southern vegetables. The Bella Union, also in West Edens Link, serves coffee, assorted hot
Religious Life 93

and cold beverages, pastries, and ice cream. The Terrace Café in the Duke Gardens features delicious baked goods as well as salads, wraps, and assorted beverages. The Refectory, an environment-friendly eatery, is located in the Divinity school and serves breakfast and lunch.

On East Campus, The Marketplace carries an array of choices including pasta, pizza, deli, rotisserie, grill, and salad bar stations. Trinity Café has a diverse selection of quality coffees, pastries, bakery items, and snacks. In Trent Hall, Grace’s Café offers a wide variety of American and authentic Chinese cuisine. Blue Express (LSRC Pratt Dining Commons) provides hot and cold sandwiches and entrees, snacks, desserts, and drinks; and Twinnies (Ciemas Building) offers sandwiches and salads. Our newest eatery, French Science café, features coffee and fresh pastries.

Students may also use their dining plan points to purchase food items in three campus convenience stores: Uncle Harry’s General Store on Central Campus, the East Campus Store on East Campus, and the Lobby Shop on West Campus as well as concessions at athletic events; sodas and snacks from vending machines; and late night pizza and sub delivery from approved local vendors.

Religious Life

Two symbols indicate the importance of religion to this university since its founding: Eruditio et Religio, the motto on the seal of the university, and the location of the Duke Chapel at the center of the campus.

The Dean of the Chapel and the Director of Religious Life work with campus ministers and staff from 27 individual groups, including Roman Catholic, Jewish, Hindu, Muslim, Buddhist, and Protestant communities, to provide a ministry which is responsible to the plurality of religious and spiritual interests on the campus.

Through the religious life of the university, students are encouraged to search for meaning, to ask the ultimate questions, to worship, to meditate in the beautiful chapel, to learn from outstanding theologians from a wide array of traditions, and to work to bring about a more just and humane society.

Services Available

Residence Life and Housing Services. This department is dedicated to creating a residential community supportive of a rich educational experience. It advises individual students regarding residential and interpersonal issues, houses undergraduates, and assists students in planning and presenting educational and cultural programs within the residence halls.

Members of the Residence Life and Housing Services staff advise and support residentially-based governing bodies, notably the East Campus Council, the six quad councils, Central Campus Council, and the Campus Council.

Staff in Residence Life and Housing Services and the Dean of Students Office oversee the university’s response to student emergencies. For more information see the Web site at http://rlhs.studentaffairs.duke.edu.

Office of the Dean of Students. This office responds to student and parent concerns, provides advising and support to Duke’s student Greek organizations, administers the mediation and student conduct processes, and assists students with issues related to off-campus housing. The office plans and implements Parents and Family Weekend and New Student Orientation and coordinates the first-year and transfer student advisory counselors (FACs). FACs are upperclass men and women who are assigned to small groups of entering students. During orientation, FACs welcome their groups and help to acquaint new students with the university. The Office of the Dean of Students oversees undergraduate judicial affairs. Judicial affairs are handled by coordinating and applying the general rules and regulations of the university as well as working with all participants involved in the
disciplinary process. For more information, see the Web site at http://deanofstudents.studentaffairs.duke.edu.

The Student Health Center. The Student Health Center provides medical care, advice, and education for all currently enrolled full-time students and part-time degree candidates.

The primary location for medical care is the Student Health Center in Duke Clinic (primary entrance on Flowers Drive) where students are seen, by appointment or walk-in, for assessment and/or treatment. Students residing on East Campus may also use the East Campus Wellness Clinic in Wilson Hall for assistance in accessing appropriate clinical services. When a student's health needs warrant additional specialized treatment, referrals are made to other health resources within the Duke Health System and healthcare providers in the local community. In addition to medical care, the Student Health Center offers a variety of wellness and health promotion programs. The health promotion staff is available to assist students in making informed choices that support healthy lifestyles at Duke and beyond.

Health records of Duke students are confidential and are released only with the student's written permission. This policy applies to requests from university officials, friends, family members, or health professionals not involved in the student's immediate care. For information about hours of operation and services, see the Web site at: http://healthydevil.studentaffairs.duke.edu. During the academic year, students may call 681-WELL (681-9355) 24 hours a day for health information and advice.

Student Health Fee. The student health fee covers most services offered by the Student Health Center, Counseling and Psychological Services, and Sexual Assault Support Services. All full-time and part-time degree candidates must pay the student health fee for each semester or summer term enrolled at Duke. An optional summer fee for students not enrolled in summer session, but remaining at Duke, is available and may be purchased at the Student Health Center. Waivers of the student health fee are based on access to campus facilities. Waivers may be granted to students residing more than 50 miles away who do not come to campus for class, research, or other academic activity. Waivers are also available to students who are full-time Duke employees or spouses of Duke employees.

Student Health Insurance. The university makes available a medical insurance plan to protect against the high cost of unexpected illnesses or injuries which are not covered by the student health fee and would require hospitalization, surgery, or the services of specialists. This insurance covers students both on and off campus, at home, or while between home and school during interim vacation periods throughout the one-year term of the policy. All full-time students and part-time degree candidates are required to enroll in this insurance policy unless they show evidence (the name of the insurance company and policy number) that they are covered by other generally comparable insurance. Students must verify and update insurance information each semester in ACES as part of Duke's online registration process. Participation in the Duke plan is mandatory for international students holding a J-1 or F-1 visa. These students will automatically be enrolled in and charged for the Duke plan.

Counseling and Psychological Services. Counseling and Psychological Services (CAPS) provides a range of counseling and psychiatric services to address the acute emotional and psychological difficulties of students. The professional staff is composed of psychologists, clinical social workers, and psychiatrists experienced in working with college students. They provide evaluation and brief counseling/psychotherapy for a wide range of concerns, including college adjustment, self-esteem and identity, family relationships, academic performance, and intimacy and sexuality. While students' visits with counselors are usually by appointment, emergencies services are available.

Each semester, CAPS offers counseling groups and seminars focusing on enhanced self-understanding and coping strategies. Support groups have been offered for second generation Americans; African American students; students completing dissertations; students with eating disorders; and gay, lesbian, bisexual, and transgender students. Other
groups have addressed such topics as eating and body image concerns, emotional regulation, meditation and perfectionism.

The staff is available to the university community for consultation regarding student development and mental health. Staff members are also available to lead workshops and discussion groups on topics of interest to students.

CAPS, consistent with professional ethics and the North Carolina law, maintains a policy of strict confidentiality concerning information about each student's contact with CAPS. If a student desires information to be released, written authorization must be provided. CAPS' services are covered by the student health fee. For additional information, call (919) 660-1000, or see the Web site at http://caps.studentaffairs.duke.edu.

**Career Center.** The Career Center provides services and programs that facilitate the career development process for Duke University students and alumni. This process teaches skills in self-assessment, career exploration, decision-making, and job selection. The center serves the students and alumni of Trinity College, the Pratt School of Engineering, and the Graduate School.

A network of alumni volunteers provides career information, job-hunting strategies, and shadowing opportunities. A full-time internship coordinator plus a variety of internship resources help students gain practical experience relevant to their career interests.

Career counselors help students begin the process of discovering career interests and options. In addition to individual appointments, daily drop-in advising hours are available for quick questions. Workshops on resume and cover letter writing, interview techniques, and researching employers are offered regularly to aid students with the job search process. Students may research career fields, employers, and sources of summer and full-time work opportunities using a collection of books, periodicals, and other materials housed in the Career Center library. For more information go to http://career.studentaffairs.duke.edu.

**Sexual Assault Support Services.** The Office of Sexual Assault Support Services (SASS) provides a central on-campus resource for information and assistance regarding sexual violence. SASS offers prevention education to the Duke community and direct service to student survivors as well as their families and friends. In addition to coordinating the Survivor's Network, a support group for sexual assault survivors, SASS staff work closely with other University departments to provide comprehensive information and advocacy relevant to counseling, medical services, law enforcement, academic issues, judicial and legal concerns, and residential living. For more information, call the SASS staff at 919-684-3897 or visit the Women's Center. For crisis information and referral outside normal business hours, call the crisis information line at 682-6882, the Dean-on-Call, or Durham Crisis Response Center at 919-403-6562.

**Services for Students With Disabilities.** Duke University is prepared to make reasonable accommodations to allow students with disabilities full participation in the same programs and activities available to students without disabilities. The Student Disability Access Office (SDAO) assists students with disabilities who are enrolled in Trinity College and the Pratt School of Engineering. In order to receive consideration for reasonable accommodations under the Americans with Disabilities Act (ADA), a student must have a physical or mental impairment that substantially limits one or more major life activities such as, but not limited to, hearing, seeing, speaking, breathing, performing manual tasks, walking, caring for oneself, and learning. Substantially limiting refers to an impairment that prevents an individual from performing a major life activity or significantly restricts the condition, manner, or duration under which an average person can perform a major life activity.

Students requesting accommodations under the provisions of the ADA (e.g., academic, housing) must contact the Director, Student Disability Access Office, at (919) 668-1267, to explore possible coverage. Students with medical conditions not covered under the
provisions of the ADA must contact Duke Student Health Service at (919) 684-3367 for further information.

In the interest of providing reasonable accommodations under the Americans with Disabilities Act, Trinity College and the Pratt School of Engineering will accommodate students who have a documented long-term or chronic disability that prevents them from carrying a full course load. For these students, provided they are able to function academically, an underload/part-time course load will be authorized by the respective student’s academic dean upon the recommendation of the director of the Student Disability Access Office. Students so authorized (and for as long as they continue to enroll in a course underload) are exempted from meeting normal continuation requirements.

Students who wish to petition a reduced course load (fewer than four courses) prior to the beginning of a semester must have their request reviewed and approved by the SDAO prior to the beginning of the semester. These students must pass at least five of six consecutive courses while on a course underload.

Students who wish to petition a part-time course load (fewer than three courses) must have their request reviewed and approved by the SDAO prior to the beginning of the semester. These students must pass at least three of four consecutive courses taken while enrolled on a part-time basis.

Failure to meet this standard of academic performance will result in a withdrawal for academic reasons. Students approved for a part-time course load are eligible for financial aid in accordance with federal, state, and university guidelines. Students approved for a part-time course load are also eligible for university housing. All students accommodated under this policy must have their request reviewed prior to the beginning of each semester and are expected to return to full enrollment when/if their health or physical condition improves sufficiently. For further information regarding this policy, please contact the Director, Student Disability Access Office, at (919) 668-1267.

Receiving accommodations or special assistance at the high school level or at another college or university does not necessarily qualify an individual for the same accommodations and/or assistance at Duke University. For other academic assistance available to all Duke undergraduate students, see the section on the Academic Resource Center in this bulletin.

The Vice-President for Institutional Equity is the designated compliance officer for the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973. The compliance officer can be reached at (919) 684-8222. Section 504 of the Rehabilitation Act states: "No qualified [disabled] person shall, on the basis of [disability], be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any program or activity that receives benefits from federal financial assistance." (Appendix II, section 51.51(a)).

Student Service Center. The Student Service Center (SSC) provides assistance with routine transactions and questions associated with student administrative services offices (bursar, registrar, financial aid, student loan, external loan, and DukeCard). The office accepts and posts payments to student accounts, collects signatures on co-payable loan and scholarship checks, distributes reimbursement and travel advance checks, provides authorized cash advances, prints official transcripts, collects forms pertaining to registration and records, manages the North Carolina Legislative Tuition Grant Program, updates student biographical and demographic data, issues International student ID cards, generates duplicate Work-Study authorization forms, and processes classroom reservations for one-time events. The SSC also has walk-up computers for students to use, a DukeCard self-service station where students can add dining and FLEX points to their DukeCard, and an ePrint station.

SSC staff members are trained to answer general questions about other services that impact students including student health insurance, parking, payroll deductions, and student health services. The SSC also serves as the functional coordination unit for the student
portal, DukePass, and for the institutional event calendar. For more information, see the Web site at http://www.duke.edu/studentservicecenter/.

# Offices for Program Planning

**The Office of Student Activities and Facilities.** The Office of Student Activities and Facilities (OSAF) promotes the development of leadership skills through a variety of programs that both educate and support individual students and student organizations. OSAF is the central resource for information concerning student organizations, acting both as liaison and advocate, facilitating the financial management of organizational funds, and providing both counsel and direct services. The office coordinates the event registration process for student organization events and oversees all student-related nonresidential, nonacademic facilities. For more information, go to the following Web site: http://osaf.studentaffairs.duke.edu.

**The Mary Lou Williams Center for Black Culture.** The Mary Lou Williams Center for Black Culture strives to increase awareness, promote self and group understanding, build unity and community, and foster an appreciation for and understanding of Black history, Black people, Black culture, and the vast contributions of people of the African Diaspora. It provides programs and services that foster the successful academic and personal development of Black students at Duke University and positively impacts the community. All of the center’s efforts are designed to deal critically, supportively, and creatively with individuals and entities in order to foster consciousness about the significance of Black experience.

The center sponsors performances, lectures, films, community conversations, exhibitions, and a host of other enduring as well as innovative events. Located on the second floor of the West Union Building on West campus, the Mary Lou Williams Center was named in honor of the pianist and composer who graced Duke University as an Artist-in-Residence from 1977 until her death in 1981. For more information, see the center’s Web site at http://mlw.studentaffairs.duke.edu.

**The Women's Center.** The Women's Center promotes the full and active participation of women in higher education at Duke by providing advocacy, support services, referrals, and educational programming on gender-related issues. Women's Center programs and services address leadership, safety, harassment, health, campus climate concerns, personal and professional development, and the intersection of gender with race, class, and sexual orientation. The center responds to the changing needs of the university community, raises awareness of how gender issues affect both women and men on campus, and advocates for individuals and groups experiencing gender-related problems, such as sexual harassment or gender discrimination. Duke's Sexual Assault Support Services is also housed in the Women's Center.

The center offers internships, paid student jobs, and volunteer opportunities to help with programming and operations; houses a 4,000-volume feminist lending library; and publishes VOICES, a yearly literary magazine addressing issues of gender, ethnicity, and sexual orientation on campus and in the wider community. Additionally, the center advises and serves as a meeting place for student groups addressing gender issues on campus including SHARP (Sexual Harassment and Rape Prevention) peer educators, GPWN (Graduate and Professional Women's Network), and WiSE (Women in Science and Engineering). Until December of 2008, the Women's Center will be located at 306 Alexander during the renovation of Few Quad. For more information, see the Web site at http://wc.studentaffairs.edu.

**International House.** International House serves as the center of co-curricular programs for internationals and U.S. Americans interested in other cultures and peoples. International House assists internationals and their families with orientation and acclimation, enhances cross-cultural interaction through programming and community
outreach, and provides advocacy and support for the Duke international community. There are more than 2,000 international students from 117 countries enrolled at Duke. Programs include an intensive orientation program at the beginning of the academic year; the International Friends Program that pairs internationals with local families to promote friendship and cross-cultural learning; and Duke Partners that pairs internationals with U.S. Americans for weekly conversation and language exchange. International Competency Training is offered for individuals interested in developing awareness and skills needed to manage cultural diversity at both interpersonal and organizational levels. The International Association is a student-run group that sponsors culture nights, trips, sports, teams, and an annual campus-wide International Festival. For more information, see the Web site at http://ihouse.studentaffairs.duke.edu.

The Center for Multicultural Affairs. The Center for Multicultural Affairs provides support services for students of color and offers educational opportunities and resources in the areas of diversity and multicultural education to the campus at-large. It has responsibility for assisting with changes in the Duke University community that promote optimum growth and development for African American, Asian American, Latino American, and Native American undergraduates and graduate/professional students. It also assumes a primary role on campus for the diversity education of all students as well as in helping to build a shared sense of community among all groups. The center conducts and supports such activities as the student run Center for Race Relations, Council of Cultural Group Presidents, faculty lecture series, programming grants for student groups, student leadership training program, public forums on student life, mentorship projects with university alumni, seminars on current issues affecting students of color, and institutional research on students of color. The center serves as a resource for the university community on students of color related issues and diversity in general. For more information see the Web site at: http://mcc.studentaffairs.duke.edu.

The Community Service Center. The Community Service Center is a clearinghouse for volunteer and community service activities available to students, faculty, and employees. Through the center, members of the Duke community can become involved with student service groups and Durham area agencies doing everything from tutoring and mentoring, helping to care for people with AIDS, serving meals at local homeless shelters, befriending senior citizens and earning work-study money in community service internships. The Community Service Center also sponsors speakers, special events, training sessions, and many other programs. In these ways, the center strives to raise awareness about contemporary social issues, to provide opportunities for students to link their service work and coursework, and to be a catalyst for creative partnerships between Duke University and the wider community. See the Web site for more information: http://csc.studentaffairs.duke.edu.

The Center for Lesbian, Gay, Bisexual, and Transgender Life. The mission of the Center for Lesbian, Gay, Bisexual, and Transgender Life (Center for LGBT Life) is to provide education, advocacy, support, and space for lesbian, gay, bisexual, transgender, questioning, and straight-allied students, staff, and faculty at Duke, as well as alumni/ae and members of neighboring communities. The center provides a safe haven to discuss issues of sexuality as they relate to self, family, friends, and others; a friendly and comfortable location for lesbians, gays, bisexuals, transgender persons, and allies to socialize and discuss issues affecting the community; a place for groups to meet and organize activities; a resource center and library containing magazines, books, and information by, for, and about lesbians, gays, and bisexuals and transgender persons; advocacy on lesbian, gay, bisexual, and transgender matters at Duke; and a broad array of co-curricular, educational programming aimed at diverse audiences in and around the university. Through these services, the Center for LGBT Life presents opportunities for all students, faculty, staff, and alumni/ae to create
Student Organizations

Duke Student Government. The Duke Student Government (DSG) is the voice of the undergraduate student body of Duke University. DSG is responsible for articulating undergraduate student thought on issues relevant to the university and for working to improve the educational process and university environment. The working philosophy of DSG is that students have the right to participate in the university's decision-making process on matters that affect the student body. Coordinating the efforts of individuals and organizations, DSG lobbies university administrators on practices and policies which govern all facets of life at Duke.

DSG offers the opportunity for students to have input in university planning and policy development through the legislature, through university-wide committees, and through many unique student services. DSG's services seek to aid every undergraduate during his/her Duke career. For more information, see the Web site at http://dsg.oit.duke.edu.

Cultural and Social Organizations. The scope of the more than three hundred student organizations is suggested by a partial listing of their names: Alpha Phi Omega service fraternity, Black Student Alliance, Baptist Student Union, Cheerleaders, International Association, Duke Ice Hockey, Outing Club, Sailing Club, Model United Nations Club, Photography Group, and the N.C. Rural Health Coalition. There are 38 nationally-affiliated Greek chapters on Duke's campus. Around 37 percent of undergraduates are Greek-affiliated; over 40 percent of women belong to sororities and nearly 30 percent of men are fraternity members.

Many opportunities are provided on campus in the areas of music and drama. The Chorale, United in Praise, Chapel Choir, Wind Symphony, Marching Band, Symphony Orchestra, and Collegium Musicum are examples of musical organizations. Duke Drama provides opportunities for non-drama majors to perform established and experimental drama; Hoof 'n' Horn presents musical comedy; Karamu performs drama related to the Black experience.

Several academic departments sponsor organizations and programs for students with special academic or professional interests. There are over twenty academic department majors unions on campus. There are also academic and leadership honorary societies.

Media. The Chronicle, the campus newspaper, publishes five issues weekly and is a separate not-for-profit organization. A humor magazine (Carpe Noctem), a literary magazine (the Archive), a science magazine (Vertices), a photography magazine (Latent Image), a journal of campus news and opinion (Duke Blue), and Eruditio, a social science journal, are published on a regular basis by students. In addition, a comprehensive yearbook, the Chanticleer, is produced each year. These publications are under the direction of the Undergraduate Publications Board, which chooses the editors and business managers and reviews the financial budgets. The DukEngineer, the official student magazine of the Pratt School of Engineering, appears twice each year and contains articles on technical and semi-technical topics as well as other matters of interest to the school. VOICES magazine, published by the Women's Center, addresses issues of gender, ethnicity, and sexual orientation. Additionally, there are a number of independent publications on a variety of topics published by students and distributed on campus. WXDU 88.7 FM is the student-managed and programmed radio station, broadcasting to the Duke and Durham communities. Duke Union Community Television (Cable 13) is operated by students and produces color television programs that are broadcast throughout the campus on the university cable system.
Health, Physical Education, and Recreation

Besides offering a variety of classes (see the chapter "Courses of Instruction"), the Department of Health, Physical Education, and Recreation also sponsors numerous programs for all students in intramurals, sports clubs, and recreation.

The Intramural Sports Program provides an opportunity for every student to participate in organized recreation competition in over 40 activities. The program is comprised of four major areas: men's intramurals, women's intramurals, co-ed intramurals, and recreation programs. It is open to all graduate and undergraduate students of Duke University. Participation, not skill, is a major factor that is emphasized in the program.

More than 35 sports clubs have been chartered by Duke students for those with similar interests to participate in competition and recreational activities. Clubs vary from those which compete with clubs of other universities, such as soccer, rugby, and ice hockey, to those of a more recreational nature such as cycling, and sailing, and others which yearly present several performances.

The university's many recreational facilities, available to all students, include the championship Robert Trent Jones Golf Course, tennis courts (some lighted) on both campuses, indoor swimming pools on East and West campuses and an outdoor pool on Central campus, three gymnasiums including the Brenda and Keith Brodie Recreation Center on East Campus and the Wilson Recreation Center on West Campus, several weight training rooms, squash and racquetball courts, outdoor handball and basketball courts, an all-weather track, numerous playing fields, jogging trails, and informal recreational areas. Tournaments in recreational sports are often organized and conducted by students. Students may reserve facilities and equipment at designated times.

Intercollegiate Athletics

The Athletic Department fosters intercollegiate athletics by striving for excellence and by providing the best possible framework within which highly accomplished student athletes can compete. The department has a dual responsibility to provide a high-quality athletic program and environment so that all students have the opportunity to compete to the fullest extent of their abilities. Duke is a member of the National Collegiate Athletic Association (NCAA) and the Atlantic Coast Conference (ACC). The ACC consists of Boston College, Clemson, Duke, Florida State, Georgia Tech, Maryland, Miami, North Carolina at Chapel Hill, North Carolina State, Virginia, Virginia Tech, and Wake Forest.

The intercollegiate program for men includes football, soccer, basketball, cross country, swimming, fencing, wrestling, indoor and outdoor track, baseball, golf, tennis, and lacrosse. The women's athletic program provides intercollegiate competition in basketball, fencing, field hockey, golf, lacrosse, soccer, swimming, tennis, volleyball, rowing, indoor and outdoor track, and cross country. Freshmen may participate on all varsity teams.

The director of athletics and associate director of athletics provide departmental leadership and coordinate all athletic policies with the University Athletic Council. The council consists of representatives from the undergraduate student body, the faculty, the administrative staff, the trustees, and the alumni. The council meets with the director of athletics periodically during the school year. The chairman of the council is the official university representative at national and conference athletic meetings.

Judicial System and Regulations

Duke University has high expectations for students’ scholarship and conduct. Each student is subject to the rules and regulations of the university currently in effect, or which are put into effect from time to time by the appropriate authorities of the university. At the same time, the individual is responsible for decisions and choices within the framework of the regulations of the community, as Duke does not assume in loco parentis relationships.
Students, in accepting admission, indicate their willingness to subscribe to and be governed by these rules and regulations. They acknowledge the right of the university to take disciplinary action, including suspension or expulsion, for failure to abide by the regulations or for other conduct adjudged unsatisfactory or detrimental to the university community.

Responsibility for prescribing and enforcing rules and regulations governing student conduct rests ultimately with the Board of Trustees of Duke University and, by delegation, with administrative officers of the university. In the undergraduate schools, and in the university as a whole, many of these rules have been established over the years by cooperative action between students, faculty, and administrative officers. Representative student organizations, such as student governments and judicial boards, and more recently, community-wide bodies of students, faculty, and administrators, have initiated proposals for policies and rules necessary to assure satisfactory standards in academic and nonacademic conduct. These proposals have been accepted by university officers and have become a substantial, if not all-inclusive, body of rules governing student life at Duke. For current regulations, refer to the *The Duke Community Standard in Practice: A Guide for Undergraduates*.

Students in Trinity College of Arts and Sciences and in the Pratt School of Engineering constitute an undergraduate community whose members are subject to the rules and regulations of the Undergraduate Community. Violations of any published policy by individuals and residential or nonresidential cohesive units may be adjudicated under the procedures set forth in the *The Duke Community Standard in Practice: A Guide for Undergraduates*.

**Student Obligations and Requirements**

Students are expected to meet academic requirements and financial obligations, as specified elsewhere in this bulletin, in order to remain in good standing. Certain nonacademic rules and regulations must be observed also, including accepting responsibility for behavior that is disruptive or threatening to the safety of self or others. Failure to meet these requirements may result in dismissal by the appropriate officer of the university.
Admission
Principles of Selection

James B. Duke, in his Indenture of Trust, requested that "great care and discrimination be exercised in admitting as students only those whose previous record shows a character, determination, and application evincing a wholesome and real ambition for life." Therefore, in considering prospective students, Duke University looks beyond the basic characteristics of academic competence possessed by the majority of applicants. It seeks, regardless of race, color, religion, national and ethnic origin, gender, handicap, sexual orientation or preference, or age, not only evidence of intellectual promise and maturity of judgment, but also a sense of life beyond the classroom. Often, this is expressed in the form of special talents and accomplishments; it is seen consistently in a student's determination to make creative use of the opportunities and challenges posed by Duke University.

Requirements for Application

As there are occasionally changes in admission policies or procedures after the printing deadline for the Bulletin of Duke University: Undergraduate Instruction, candidates are urged to consult the Duke University Viewbook: Information for Prospective Students for specific admissions information, dates, and policies.

DEGREE STATUS

Although there are no inflexible requirements as to subject matter, students are urged to choose a broad and challenging high school program. Candidates for admission should present a minimum of four years of English and at least three of mathematics, natural sciences, a foreign language, and social studies. Applicants to the Pratt School of Engineering are advised to take four years of mathematics and four years of science, including physics and chemistry. Calculus is a prerequisite for admission to the Pratt School of Engineering. All candidates for first-year standing must complete either the SAT Reasoning Test or the ACT. Those students who choose to take the three-part SAT should also complete two SAT Subject Tests. Applicants to the Pratt School of Engineering should take one SAT Subject Test in mathematics (level 1 or 2). Students wishing to continue study or gain course exemption in a foreign language should complete an SAT Subject Test or Advanced Placement exam in that language. Even though the foreign language SAT Subject Test is not required for admission, we strongly recommend that students take the test before leaving high school. Students should refer to the Duke University Web site, at http://www.duke.edu, and follow the appropriate undergraduate admissions links for the most recent information on SAT Subject Test requirements for incoming students. The SAT Reasoning and Subject Tests should be taken by October of the senior year for Early Decision applicants and by January of the senior year for Regular Decision applicants. Students choosing to take the ACT will not be required to submit SAT Reasoning or Subject Test scores; however, the ACT will be used for admission only, not for placement or exemption. The ACT should be taken by
October of the senior year for Early Decision applicants and by December of the senior year for Regular Decision applicants.

NONDEGREE STATUS

Summer Session. Persons who are or were at the time of leaving their home institutions in good standing in accredited colleges or universities may be admitted for summer study only by the director of the Summer Session.

Continuing Education. Admission as a continuing education student at Duke is limited to adults who live in the Triangle area; Duke graduates; persons who will be moving into the area and plan to reside here for a substantial period of time, for family and work reasons; and local high school seniors. These students are given academic counseling by the Office of Continuing Studies; they are subject to most of the regulations set forth for degree candidates.

Application Procedures

DEGREE STATUS

The Duke University Viewbook: Information for Prospective Students and an application may be obtained from the Office of Undergraduate Admissions, Duke University, Box 90586, Durham, North Carolina 27708-0586. A nonrefundable processing fee that is determined annually must accompany the first part of the application. Students may apply using the Common Application plus two Duke-specific supplementary forms: the Student Supplement (Form A) and the School Report Supplement (Form B). The Common Application is available online and in secondary school guidance offices. The required Student Supplement to the Common Application is available from the Office of Undergraduate Admissions or through the admissions Web site. Students are encouraged to apply online by following the appropriate links on the admissions Web site.

A personal interview is not required for admission, but it provides an opportunity to learn more about an applicant’s strengths and goals. For most applicants, Duke offers interviews with local alumni when the Student Supplement to the Common Application has been filed by the deadline (October 20 for Early Decision applicants and December 10 for Regular Decision applicants).

Regular Decision. Candidates who wish to enter Duke as first-year students must submit a completed application no later than January 2 of their senior year in secondary school. Decisions are mailed from the university in early April, and accepted candidates are expected to reserve a place in the class by May 1.

Early Decision. Students for whom Duke is a clear first choice may apply for Early Decision. Candidates who apply for Early Decision are required to sign a statement confirming their commitment to enroll at Duke if they are admitted in the Early Decision process and to withdraw applications from other colleges and universities as soon as they learn of their admission to Duke. Students may apply to only one school under a binding Early Decision plan. Duke reserves the right to withdraw the applications of students accepted to other schools under binding Early Decision plans. Secondary school counselors and parents are also asked to sign the Early Decision agreement. Students who are denied admission under the Early Decision program may not reapply for admission under the Regular Decision program.

Students applying for Early Decision should submit a completed application by November 1. The SAT Reasoning Subject Tests or the ACT examinations should be taken no later than October of the senior year. Early Decision applicants who have not completed their standardized tests may be deferred to Regular Decision. Applicants are notified of their status—admit, defer, or deny—by mid-December. Admitted students are expected to respond by January 2. The credentials of candidates who are deferred are considered along with candidates for Regular Decision. Deferred students are no longer bound by the Early
Decision agreement and are free to accept offers of admission from other colleges and universities.

This plan is designed to give well-qualified students who know Duke is their first choice a means of indicating that commitment to the university and of receiving a decision early enough to eliminate the necessity of applying to several colleges.

**Midyear Admission.** A midyear (January) admission program has not been offered to first-year students for a number of years and there are no current plans to reinstate one. When offered, midyear admission has allowed students to begin their college work a semester early or to postpone matriculation for a semester.

**Transfer Admission.** Transfer admission from other accredited institutions may be arranged for a limited number of students each semester. Because the transcript of at least one full year of academic work is preferred by the Admissions Committee, and because transfer students are required to spend their last two years at Duke, most candidates apply to Duke during their first or second year of college. All Duke students, except those majoring in engineering, must meet the requirements for the Trinity College curriculum, so students applying to transfer to Trinity College should plan to spend three years at Duke in order to meet the requirements for the Trinity College curriculum and the major. Candidates must submit completed application forms, official transcripts of all work completed at other accredited colleges, high school records, scores on the SAT or ACT, and employment records if there has been an extended period of employment since graduation from secondary school. See the section on transfer credit on page 48.

September (fall semester) transfer students submit a completed application by March 15, learn of their decisions in mid-May, and respond to the university by June 1. January (if offered) transfer students submit a completed application by October 15, learn of their decisions by November 15, and reply to the university by December 1. January transfer is not available to students in their first year of college.

**NONDEGREE STATUS**

**Summer Session.** Registration forms and schedules of courses may be obtained by writing or calling the Office of the Summer Session, Box 90059, Duke University, Durham, North Carolina 27708-0059, (919) 684-2621. No application fee is required.

**Continuing Education.** Applications may be obtained from the Office of Undergraduate Admissions and must be returned to that office, accompanied by the application fee, by August 1 for the fall semester and by December 1 for the spring semester. A certain grade point average over four courses must be attained before a nondegree student may apply for degree candidacy. More detailed information on nondegree course work through continuing education is available from the Office of Continuing Studies, Box 90700, Duke University, Durham, North Carolina 27708-0700.

**READMISSION OF FORMER STUDENTS**

A student who desires to return, following withdrawal from college, should apply directly to the appropriate college or school. (See the section on readmission procedures on page 60.)
Financial Information
Tuition and Fees*

No college or university can honestly state that an education at the college level is inexpensive. Fees paid by students cover less than half the cost of their instruction and the operation of the university. Income from endowment and contributions from alumni and other concerned individuals meet the balance and assure each student the opportunity to pursue an education of unusually high quality.

Students are urged to give their attention first to the selection of institutions which meet their intellectual and personal needs, and then to the devising of a sound plan for meeting the cost of their education. This process will require an in-depth knowledge of both the university’s financial aid program and the resources of the student’s family. Information describing in detail the various forms of financial aid may be obtained from the Office of Undergraduate Financial Aid web site at: [http://dukefinancialaid.duke.edu](http://dukefinancialaid.duke.edu).

**Estimated Expenses.** The figures in this section are projections and are subject to change. Certain basic expenditures, such as tuition, room, and board, are considered in preparing a student’s budget. These necessary expenditures, with a reasonable amount allotted for miscellaneous items, are shown below:

<table>
<thead>
<tr>
<th></th>
<th>Academic Year, 2008-2009 (two semesters)</th>
<th>Two Summer Terms, 2008 (one semester equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trinity College</td>
<td>$36,065</td>
<td>$9,408-10,976</td>
</tr>
<tr>
<td>Engineering</td>
<td>$36,065</td>
<td>$9,408-10,976</td>
</tr>
<tr>
<td>Residential Fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Room</td>
<td>$7,070-8,510</td>
<td>n/a</td>
</tr>
<tr>
<td>Double Room</td>
<td>$5,360-6,440</td>
<td>$1,830</td>
</tr>
<tr>
<td>Triple Room</td>
<td>$4,770-5,750</td>
<td>n/a</td>
</tr>
<tr>
<td>Food (projections include a meal plan service fee)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% board plan</td>
<td>$5,029</td>
<td>$1,659</td>
</tr>
<tr>
<td>75% board plan</td>
<td>$4,329</td>
<td>$1,049</td>
</tr>
<tr>
<td>Books and Supplies</td>
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<td>$553</td>
</tr>
<tr>
<td>Student Health Fee</td>
<td>$568</td>
<td>$175</td>
</tr>
<tr>
<td>Student Activity</td>
<td>$222</td>
<td></td>
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<tr>
<td>Student Services Fee</td>
<td>$232</td>
<td></td>
</tr>
<tr>
<td>Recreation Fee</td>
<td>$208</td>
<td>$34(^1)</td>
</tr>
<tr>
<td>Residential Program Fee</td>
<td>$93</td>
<td></td>
</tr>
</tbody>
</table>

1 This fee is optional.

It should be realized that additional expenses will be incurred which will depend to a large extent upon the tastes and habits of the individual. The average undergraduate student, however, can plan on a budget of approximately $50,633. The budget estimate for the summer (two terms, one semester equivalent) is $13,659. These budgets represent most

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* The figures in this section are projections and are subject to change.
student living expenses except for cable, telephone, parking, travel costs, loan fees, and major clothing purchases.

Fees and Deposits for Fall and Spring. On notification of acceptance, students (including transfer students) are required to pay a nonrefundable registration fee of $100 which includes a one-time transcript processing fee, and to make an advance deposit of $200. The deposit will not be refunded to accepted applicants who fail to matriculate.

Late Registration. Continuing students who fail to register during the registration period must pay a fee of $50 to the bursar.

Part-Time Students. In the regular academic year, students who with permission register for not more than two courses in a semester will be classified as part-time students. Part-time students will be charged at the following rates: one course, $4,508; half course, $2,254; quarter course, $1,127. Registration for more than two courses requires payment of full tuition. Graduate students registered for undergraduate courses will be assessed three units for non-laboratory courses and four units for laboratory courses. Men and women in nondegree programs who are being considered for admission to degree programs, as designated by the Office of Continuing Education, pay fees by the course whether the course load is one, two, or three courses.

Auditing one or more courses without charge is allowed for students paying full fees, provided that the consent of the instructor is obtained. Students who are enrolled for one or two courses may audit other courses by payment of $439 for each course audited. With the consent of the appropriate instructor and the director of Continuing Education, graduates of Duke may audit undergraduate courses for the above payment per course.

Fall and Spring Student Bills. The Bursar’s Office issues bills to registered students for tuition, fees, and other charges approximately four to six weeks prior to the beginning of classes each semester. The amount due on the bill statement is payable by the due date as indicated on the bill. Inquiries can be made at the Bursar’s Office by e-mail at bursar@duke.edu, by facsimile at (919) 684-3091, or by telephone at (919) 684-3531. Current account information is available on the ACES Web site. Office hours are from 8:30 a.m. to 5:00 p.m., Monday through Friday.

As part of the admission agreement to Duke University, a student is required to pay all bills as presented. If full payment is not received, a late payment charge will be assessed on the subsequent bill, and certain restrictions, as stated below, will be applied. Failure to receive a bill does not warrant exemption from the payment of tuition and fees, nor from the penalties and restrictions. Bills are mailed to the student’s permanent home address as maintained by the student on the ACES Web site. Non-registered students will be required to make payment for the current term’s tuition and fees, as well as any past due balance, at the time of registration. Payment can be made by e-check at www.bursar.duke.edu.

Restrictions for Outstanding Account Balances. An individual will be in default if the amount due, as listed on the bill, is not paid in full by the required due date. In addition to the assessment of late payment charges, a student in default will not be allowed to register for future semesters, to receive a transcript of academic records, to have academic credits certified, or to receive a diploma at graduation. In addition, an individual in default may be subject to withdrawal from school and have the account referred to a collection agency and credit bureau.

Duke Student Insurance. Undergraduates enrolled in programs that require payment of the student health fee must also maintain adequate medical insurance (in addition to paying the mandatory student health fee). Adequate medical insurance is defined as insurance that meets or exceeds the level of coverage provided by the Duke Student Medical Insurance Plan ("the Duke Plan").

International students holding an F-1 or J-1 visa are required to participate in the student medical insurance plan. These students will be automatically enrolled in and charged for the plan; no action is required on the part of the student.
Information on how to enroll or waive coverage under the Duke plan, as well as information regarding plan benefits will be available at www.bursar.duke.edu.

**Fees for Study Abroad.** Students who register to study abroad on programs administered by institutions other than Duke University will pay the tuition and fees of the administering institution. There will be a fee of $2,468 per semester, payable to Duke University, to maintain a student's enrollment at Duke.

**Fees for Courses.** Additional fees are charged for certain physical education activity and applied music courses. For specific charges, consult the Office of the Bursar.

**Tuition and Fees for Summer Session.** Tuition for undergraduates is $2,352 for each 3 semester hour (s.h.) course, $3,136 for each 4 s.h. course, $1,568 for each half course (2 s.h.), $784 for each quarter course (1 s.h.), and $4,704 for each one and one-half course program (6 s.h.) offered at the Marine Laboratory.

Tuition for graduate students taking an undergraduate course is as indicated above.

**Health Fee.** All Duke students and all full-time non-Duke students are required to pay $87.50 per term. All students at the Marine Laboratory are required to pay $73 per five-week registration period.

**Music Fee.** A fee of $107 will be charged for Music 79. A fee of $214 will be charged for Music 80 and 89. A fee of $428 will be charged for Music 90 and 99.

**Auditing Fees.** With permission of the instructor, students registered for a full course program (two courses) may audit one non-laboratory course except a physical education and dance activity course, a studio art course, an applied music course, and foreign programs. No extra charge is made.

Students carrying less than a full course program may be granted permission by the instructor to audit a course (the above exceptions apply) but must pay $235 for the course if it is in Arts and Sciences. Professional school course audit policies may differ.

**Payment of Tuition and Fees.** The Office of the Bursar will mail bills in May, June, July, and August to current Duke students enrolled for Summer Session. The bill due date will be two weeks from the date of the bill. Students will also be able to view their bills on the web. Problems meeting these deadlines should be discussed with the Office of the Bursar prior to the start of the term. Failure to meet deadlines may have implications for fall enrollment.

The Summer Session Office will enclose a statement of charges with the confirmation of registration letter sent to all visiting students, Duke graduates, and incoming Duke first-year students. Payment for Term I charges will be due on or before Wednesday, April 30, 2008. Payment for Term II charges will be due on or before Monday, June 16, 2008. If payment is not received by these dates, registration will be cancelled.

Summer Session retains the right to withdraw students from classes if they never attend, have not paid tuition and fees, or if they have failed to clear with the bursar, by the end of the drop/add period. Those withdrawn for these reasons will be billed the health fee and an administrative withdrawal fee of $150 per course. Attendance in classes after the first three days of the term obligates the student for the full tuition and fees for the course.

Students who, subsequent to withdrawal, clear with the Office of the Bursar may, with written permission of their academic dean, be reinstated in their classes as originally registered and receive regular grades. The administrative withdrawal fee will stand and the student will be liable for full tuition and fees.

**Transcripts.** Requests for transcripts of academic records can be made via ACES, Duke’s online student records system. Transcripts requested via ACES will be mailed the next business day. (See University Registrar’s web page, http://registrar.duke.edu, for access to ACES.) Former students who do not have access to ACES may request transcripts by submitting a signed request directly to the Office of the University Registrar, in person,

*Tuition and Fees 109*
by mail, or by fax. E-mail requests are not accepted. Transcripts may be withheld for outstanding financial obligations.

**Duke Employees.** With the permission of their supervisors, employees may, through the Office of Continuing Studies and Summer Session, take up to two courses for credit or audit during any one semester or one during a summer term. A formal application for credit course work must be submitted by August 1 for the fall semester, December 1 for the spring semester, April 15 for Term I of Summer Session, or June 1 for Term II of Summer Session. Only employees desiring to continue in the fall semester should apply for admission during the summer. Employees desiring to take a course for credit only during the summer should complete the Summer Session application/registration form.

Many employees may be eligible to receive an Employee Tuition Benefit to enroll in regular university classes. Employees with at least two years of continuous service may be eligible to receive an Employee Tuition Benefit to enroll in regular university classes for academic credit. The Employee Tuition Assistance Program provides reimbursement of tuition for a maximum of two classes per semester (limit six semester classes per calendar year) up to $5,000 per calendar year for full-time employees. The employee's work supervisor must confirm the coursework is directly related to the individual's work assignment or future career development at Duke. For additional information and an application to participate in the Tuition Assistance Program, consult [http://www.hr.duke.edu/benefits/education/tuition_assistance.html](http://www.hr.duke.edu/benefits/education/tuition_assistance.html). Staff members of Continuing Studies and Summer Session are available to advise Duke employees on educational matters (919) 684-2621.

**Living Expenses***

**Housing for Fall and Spring.** In residence halls for undergraduate students the housing fee for a single room ranges from $7,070 to $8,510 for the academic year; for a double room, the fee ranges from $5,360 to $6,440; for a triple room, the fee ranges from $4,770 to $5,750 per occupant. Apartment rates for upperclass students range from $5,170 to $6,450 per occupant.

Detailed information concerning the student's obligations under the housing license and the consequences of failure to comply are published in the *Bulletin of Duke University: Information and Regulations.*

**Housing for Summer.** For detailed information on types and costs of accommodations available at Duke University for the Summer Session contact: housing@studentaffairs.duke.edu, (919) 684-4304. Web site: [http://rlhs.studentaffairs.duke.edu](http://rlhs.studentaffairs.duke.edu).

**Food and Other Expenses.** Duke Dining Services and Duke University Stores operations are located on campus to serve the needs of the Duke community. The university identification card, known as the DukeCard, can be used to gain access to prepaid accounts and make purchases in many Duke University facilities.

The first-year student dining program includes twelve prepaid meals per week at The Marketplace at East Union; plus dining plan debit account "points" for use at any dining location on campus, three convenience stores, concessions at athletic events, sodas and snacks from vending machines, and late night pizza and sub delivery from approved local on campus vendors. The cost of the First Year Plan is $1,975 per semester for the twelve-meal plan plus one of three "points" plans (Plan G-I) which range from $350 to $435. Participation in the First Year Plan is required of all first-year students who reside on East Campus.

Upperclass students who live in the residence halls are required to participate in one of five dining plan debit accounts which allows access to all dining locations. The five

* The figures contained in this section are projections and are subject to change prior to the beginning of the Fall 2008 semester.
plan levels (Plan A - Plan E) range from $1,625 to $2,495 per semester. Upper class students who live in Central Campus apartments are also required to participate in the dining plan, but may choose to do so at the lower minimum requirement of Plan J ($1,165 per semester).

Nonresident students are not required to participate in the dining plan; however, Plan F at a cost of $570 per semester is offered as an option.

An optional summer dining plan is provided in three plan levels ranging from $250 to $810 per summer term.

Students may also purchase a Flexible Spending Account (FLEX) which can be used to purchase any goods or services from Dining Services, Duke Stores, and other campus operations. FLEX is optional and may be opened with a minimum balance of $25. Additional funds may be deposited to either the FLEX or dining plan debit account at anytime.

Information regarding these accounts is sent to matriculating students. For more information about campus retail and food facilities, see the chapter “Campus Life and Activities” in this bulletin.

**Fall and Spring Refunds**

In the case of withdrawal from the university, students or their parents may elect to have tuition refunded or carried forward as a credit for later study according to the following schedule:

<table>
<thead>
<tr>
<th>Withdrawal</th>
<th>Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before classes begin</td>
<td>Full Amount</td>
</tr>
<tr>
<td>During first or second week</td>
<td>80 percent</td>
</tr>
<tr>
<td>During third, fourth, or fifth week</td>
<td>60 percent</td>
</tr>
<tr>
<td>During sixth week</td>
<td>20 percent</td>
</tr>
<tr>
<td>After sixth week</td>
<td>None</td>
</tr>
</tbody>
</table>

Tuition charges paid from grants or loans will be restored to those funds on the same pro rata basis and will not be refunded or carried forward. In the event of death, a full tuition, fees, and residence hall refund will be granted. In case of a call to military service, a full semester's tuition, full purchase price of textbooks from the university's book store, and the pro rata amount of the room charge will be refunded. The outstanding balance of the food service plan will be refunded in case of military service or death.

In the case of dropping special fee courses (e.g., music, art, golf), or of part-time students dropping audit courses, a full refund will be granted students during the drop-add period. Students changing status to part-time are required to request permission at the time of preregistration; therefore, no refunds are granted during the drop/add period or subsequently for changes which involve carrying less than a full-time load.

Because Duke University participates in the Title IV federal aid programs, it follows federal guidelines with respect to the refund and repayment of these funds. All first-time students who withdraw within 60 percent of the enrollment period will have their charges and financial aid adjusted according to the federal regulations. Additional information regarding this procedure may be obtained from the Office of Financial Aid.

**Summer Administrative Withdrawal Charges and Refunds**

*Drop or Administrative Withdrawal Charges.* Students who will not be attending a summer term or course for which they have registered must officially drop the course(s) prior to the beginning of the term whether or not they have paid tuition and fees. (See the section on course changes for the summer term in the chapter "Academic Procedures and

*This policy does not apply to study abroad program students.
Information.

Students who fail to drop the course(s) prior to the beginning of the term will be charged $150 per course.

Refunds (Except Study Abroad Programs). Students who will not be attending a summer term or course for which tuition and fees have been paid are eligible for refunds following these policies:

1. There is a financial obligation of full tuition and fees if the student withdraws from a course(s) or withdraws from the term after the third day.
2. There is a financial obligation of $150 per course if the student officially drops a course(s) or withdraws from the term during the first three days. The health fee is not refunded. (There is no charge for drop/adds that result in no change in course load in the same term.)
3. Full tuition and fees are refunded if the student officially drops a course(s) or withdraws from the term before the first day.

Student Aid

Duke University is strongly committed to its financial aid program and, for the four years of undergraduate enrollment, will meet 100 percent of the demonstrated need of each eligible admitted U.S. citizen or eligible non-citizen. The university's aid program includes both merit and need-based scholarships, work-study, the Federal Pell Grant Program, the Federal Perkins Loan, and the Federal Stafford Student Loan Program. Admissions decisions are made without reference to a student's application for aid, and students needing assistance are strongly encouraged to apply for financial aid at the same time as for admission. Students awarded financial aid will be notified at the same time they are offered admission.

For the student with demonstrated need, the net cost of an education at Duke University will generally be no greater than that for attendance at any private college or university. It is the intention of the Office of Undergraduate Financial Aid to set each award at a level consistent with a family's ability to meet the costs of attending Duke University. This will be done by taking into consideration the contribution that can reasonably be expected from the student and the family. During the current academic year, over 43 percent of the student body receives more than sixty million dollars in aid of various types. Additional information is available on the university’s financial aid Web site at http://dukefinancialaid.duke.edu.

Financial Aid for Entering Freshmen. Candidates should initiate their application for financial aid concurrently with their application for admission. Instructions outlining the specific requirements and deadline dates will accompany application materials. To receive institutional funds, two forms must be submitted, the Free Application for Federal Student Aid (FAFSA) to the federal processor and the PROFILE application to the College Scholarship Service (CSS). Students applying for federal loans and grants and not Duke University aid need to complete only the FAFSA. If a student's parents are divorced or separated, the custodial parent must submit the PROFILE and FAFSA. The noncustodial parent must submit the CSS Non-Custodial Profile Application. The College Scholarship Service will be collecting the noncustodial parent’s information through an online process; details will be e-mailed to applicants by CSS immediately following receipt of the PROFILE application. Students will be asked to submit copies of their and their parents’ Federal Income Tax Returns from the most recent year (all schedules and W2s must be included). If tax returns for the most recent year are not available at the time of application, we will accept a copy of the prior year’s return to do an estimated aid award. Early Decision applicants must submit copies of their tax information directly to the Undergraduate Financial Aid Office. Regular Decision applicants are required to submit their tax information directly to the College Board for processing by the Institutional Documentation Service (IDOC). Students will receive information from the College Board about the IDOC process. Students’ tax information will be sent to Duke electronically by the College Board.
**Renewal of Financial Aid after the Freshman Year.** Each year students must file an application for renewal of financial aid. This application must include a new PROFILE form, a new Free Application for Federal Student Aid, a Noncustodial Parent’s Profile, if appropriate, and a copy of all pages, including schedules and attachments, of the parents' and student's current federal income tax return. Application materials can be completed online after January 1st. The deadline for the receipt of all application materials by the Financial Aid Office is May 1. Failure to meet this deadline may affect the type and amount of aid offered. All qualified students may receive need-based aid for up to eight semesters plus two summer terms.

To have financial aid renewed, a student must meet the continuation requirements outlined in the chapter "Academic Procedures and Information," as appropriate. Students not qualifying for financial aid due to their inability to meet these requirements may appeal directly to the Financial Aid Office. Students holding merit scholarships are required to maintain an average considerably higher than the minimum required for need-based financial aid recipients. Specific details regarding retention standards will be provided to scholarship winners.

**Summer School Financial Aid.** Financial aid is available for each summer session. A student may choose to attend two summer sessions as part of their ninth semester of aid eligibility. Interested students can obtain specific details as to available funding and an application through the Financial Aid Office in February of each year.

**TYPES OF FINANCIAL AID**

Gift scholarships or grants, long-term loans, and employment are integral parts of the financial aid program, and some portion of the aid offered an undergraduate is normally in each of these forms.

The work-study opportunity and loan(s) offered as financial aid are considered to be the self-help portion of the award. The standard aid package at Duke provides that the first $3,000 to $8,100 of each student's need be awarded in the form of self-help funds. Funds awarded in excess of this amount will generally be grant funds. This combination of university grant funds and opportunities for self-help enables Duke to extend its resources to a larger number of deserving students.

Duke has a number of scholarships based on merit which are available from personal endowments and corporations. Most are intended for entering freshmen and require no separate application. These scholarships may be based on achievement in a particular field or on an outstanding overall record.

**Gift Scholarships.** The following are among the named gift scholarships offered through Duke University. Where specified, these scholarships are renewable for four (4) years of undergraduate study for those students meeting the following academic standards:

Renewable merit scholarships will be continued for freshmen who complete the first year of studies with a 2.8 average or higher. Upperclass students must complete each academic year with a 3.0 average or higher. Students failing to meet the required average will be put "on review." Thereafter, students on review must receive a 3.0 average each semester to keep the scholarship or fellowship. If a scholar is ineligible to return to Duke for academic reasons, or is dismissed for disciplinary reasons, he or she will lose the scholarship.

**Angier B. Duke Memorial Scholarships.** The Angier B. Duke Memorial Scholarships, competitively awarded on the basis of academic merit, have been established to encourage the intellectual achievement of men and women by recognizing those who possess outstanding academic and leadership abilities. Candidates are selected on the basis of intellectual performance, creative talent, and promise of being eventual leaders in whatever field of endeavor they choose. The scholarship is a four-year program (eight semesters), and a student's continuation in the program is contingent upon good academic performance. All 2008-2009 freshman scholarship holders received full tuition if enrolled in Trinity College of Arts and Sciences or the Pratt School of Engineering. Students demonstrating additional need will receive a grant from Duke University funds up to the amount needed. All Angier B. Duke Scholars are eligible to
participate in a six-week summer study program at Oxford University in England. Under the Oxford program, the scholarship pays tuition, single room accommodation, full board, designated excursions for all scholars, and an allowance for transatlantic air fare. Those choosing not to participate in the Oxford program are eligible for a $2,000 grant for an approved independent project. At least one of the four years of the scholarship could be used abroad on an approved program.

**Robertson Scholars.** This history-making undergraduate scholarship program was created and funded by visionary alumnus Julian Robertson and his wife Josie. Half of these scholars matriculate at the University of North Carolina (UNC)-Chapel Hill, and half at Duke University. All exhibit exceptional leadership potential, commitment to public service, and proven interest in the diversity of peoples and cultures both within the United States and beyond its borders. The program is designed so that every Robertson Scholar will have dynamic intellectual homes at two superb universities—Duke and UNC-Chapel Hill. Robertson scholars will receive full tuition, room, and living stipends at UNC-Chapel Hill or full tuition at Duke, summer community-building and enrichment opportunities in the United States and abroad, support for research and related travel, and a top-of-the-line laptop computer.

**The University Scholars Program.** The University Scholars Program is an interdisciplinary, intergenerational community of undergraduate, graduate, and professional school scholars. Undergraduate University Scholars are exceptional students who have also demonstrated, through official financial-aid applications, that they need scholarship support to achieve their academic ambitions. Undergraduate University Scholars receive a full-tuition scholarship, assistance for additional demonstrated need, and support for a summer abroad or research project. There is no separate application; interested Duke applicants are urged to file all financial-aid forms as early as possible.

**W. N. Reynolds Memorial Scholarships.** Recipients of these awards are students with outstanding ability and/or need who show promise of constructive leadership. In considering candidates for the awards, consideration will be given in the following order: (1) children of employees of R. J. Reynolds Tobacco Company or any of its affiliates or subsidiaries; (2) children of families residing in Forsyth County, North Carolina; and (3) other candidates who are residents or natives of North Carolina. There are a number of awards available for each freshman class with a minimum value of $500.

**United Methodist Scholarships.** A number of United Methodist Scholarships are available on a basis of demonstrated need to Methodist students who have given evidence of leadership in their local Methodist Youth Fellowship groups.

**Alice M. Baldwin Scholarships.** One or more of these scholarships, varying in amount, are awarded to women who are rising seniors in Trinity College of Arts and Sciences on the basis of scholarship, character, leadership, and need.

**Panhellenic Scholarship.** A scholarship is awarded to an upperclass woman in Trinity College of Arts and Sciences on the basis of scholarship, character, leadership, service, and need.

**J. A. Jones Memorial Scholarships.** These scholarships, sponsored through the Jones Fund for Engineering, are awarded to engineering students whose outstanding academic and personal qualifications suggest that they will become leaders in a technological society. The awards may be up to $8,000 based on merit criteria set by the School of Engineering and financial need.

**Robert H. Pinnix Scholarships.** The Robert H. Pinnix Scholarships are awarded annually to two upperclassmen enrolled in the Pratt School of Engineering. The award is based upon demonstrated ability, excellence in engineering, and financial need.

**Richard Miles Thompson Scholarships.** The Richard Miles Thompson Scholarships are awarded annually to two upperclassmen enrolled in the Pratt School of Engineering. The awards are based upon academic merit and demonstrated financial need.

**The William O'Connor Memorial Scholarship.** This music scholarship of up to $2,500, established by the Mary Duke Biddle Foundation in honor of William O'Connor and in appreciation for his many years of service to the foundation, is awarded to student of a string instrument or organ.

**Air Force ROTC College Scholarship Program.** Students can apply for three-year scholarships during their freshman year and two-year scholarships during their sophomore year. Scholarships are available to qualified students who major in most fields, primarily scientific or engineering. The scholarships range from $15,000 up to full tuition, fees, and textbook reimbursement, and a monthly tax-free allotment.

**Army ROTC Scholarship Program.** All Duke students are eligible to apply for Army ROTC scholarships equal to full tuition. Awarded without regard to academic major, these grants pay a portion of tuition, fees, and textbook/equipment allowance of $900 in addition to providing a tax-free monthly stipend of $300-500 per month for 10 months. Nonscholarship Advanced Course cadets also receive the $250-400 monthly stipend. Commissioned service, following graduation, can be either on active duty or with the reserve forces as determined by the Secretary of the Army. High school seniors must apply not later than
November 1 of their senior year. Current Duke students can apply at any time. Additional information concerning Army ROTC scholarships is available from the professor of military science.

**Navy ROTC College Scholarship Program.** This program provides for up to four years’ tuition and textbooks, laboratory fees, and a monthly stipend. These scholarships, based upon academic achievement, leadership potential, and overall performance, can be awarded at any stage of the student's college career through either a nationwide selection process or by the professor of naval science at the university. In addition, two other two-year scholarships are available to rising juniors: one leads to a career in nuclear power, and the other follows a summer attendance at the Naval Science Institute at Newport, Rhode Island. For further information on any of the above scholarship programs, contact the professor of naval science, (919) 660-3700.

**Reginaldo Howard Scholarships.** These scholarships, awarded annually to freshman African-American students, are provided to honor the late Reggie Howard, first black president of the student government. Five scholarships equal to full tuition are awarded each year. Scholarships are available for the four years of undergraduate study as long as the student maintains the academic average specified for renewal.

**Kravis Scholarships.** The endowment, established in 1997, provides need-based support for disadvantaged students. Assistance is given to students enrolled in Trinity College of Arts and Sciences, with preference to African Americans. Kravis Scholars will receive financial aid for four years, which includes replacement of about one-half of the loan debt each year, and an award for one Duke-sponsored summer study abroad program.

**Gross Scholarship.** The endowment, established in 2005, provides whole or partial scholarships to undergraduate students who are, or shall be at the time of receipt of the scholarship, enrolled in Trinity College of Arts and Sciences or Pratt School of Engineering at Duke University. Scholarships will be awarded successively based upon each entering class and the availability of endowment income with first awards given in the Fall of 2005. The scholarship students will come from families with income below the median of students receiving financial aid at Duke the previous year, using the same measurement standards applied by the Office of Financial Aid. The fund and distributions from it shall be administered in accordance with the policies and procedures of Duke University and the laws of the State of North Carolina then in effect.

**The Janet B. Chiang Memorial Scholarship Fund.** This fund was created by the family and friends of Janet B. Chiang. An award is made annually to a student who has demonstrated strong leadership qualities and a strong interest in his or her Asian cultural heritage.

**Emma A. Sheafer Drama Scholarships.** These scholarships are awarded to talented prospective drama students who would not be able to attend Duke University without financial assistance. Awards shall be made to a single individual or to several qualified students in need, with first preference to students from the New York metropolitan area. Interested incoming students should apply to the director of the program.

**The Steven and Toby Korman Drama Scholarships.** The scholarship shall be awarded annually to a student(s) with demonstrated need who has demonstrated exceptional talent and ability in the field. Interested students should apply to the director of the program.

**Kohler Scholarships in Drama.** Several awards each year are given to needy students active in the Drama Program. Interested students should apply to the director of the program.

**The Beth Gotham Semans Drama Scholarships.** These awards are made annually to currently enrolled undergraduate students who have been and continue to be active in drama, with preference given to African American and other minority students. Applicants need not be drama majors but must have demonstrated need and demonstrate significant involvement in dramatic activities. Decisions are made by a special committee appointed by the Drama Program.

**Alumni Endowed Scholarships.** Three full-tuition per year Alumni Endowed Undergraduate Scholarships are awarded to needy students who demonstrate superior academic ability and leadership potential. These awards are renewable annually for those meeting the stated requirements. Although not restrictive, preference is given to children of alumni.

**Scholarships for Carolina Residents**

**The Benjamin N. Duke Leadership Award.** As part of the Benjamin N. Duke Scholarship Fund, these awards recognize and encourage leadership potential and community involvement of students from North and South Carolina. Ten scholarships, valued at full tuition, are awarded annually.

**Trinity Scholarships.** Awarded to North Carolinians of exceptional ability, these scholarships are named to honor the fact that Duke University was originally named Trinity College. Trinity scholarships provide each winner an award equal to the value of tuition, fees, room, board, and the cost of a summer program.

**Carolinas Honors Scholarships.** Carolinas Honors Scholarships, worth $5,000 each, are awarded each year to fifteen outstanding students from North or South Carolina who demonstrate financial need. The
scholarships are applied toward the loan and work-study portion of the financial aid package and are renewable for four years.

North Carolina Math Contest. Upon enrolling at Duke, the top student finishing in the top ten in the North Carolina Math Contest taken as a high school senior is eligible to receive a scholarship equal to the amount of tuition. This scholarship is available for each of the four years of undergraduate enrollment as long as the student maintains the specified average. Winners must have applied to and been accepted by Duke University.

The Perry Family Scholarship. Awarded to students from Winston-Salem and the Forsyth County area, this scholarship is awarded every other year. Recipients of the scholarship will be required to demonstrate high academic achievement as well as leadership and/or involvement in extracurricular activities. The scholarship is available for four years if the student meets the specified academic requirements.

J. Welch Harriss Scholarships. Recipients of these scholarships will receive up to demonstrated need levels based on merit criteria. These awards are made to entering freshmen who have achieved outstanding academic records. They are renewable each year as long as the student maintains the required average. Consideration will be given in the following order: (1) students from High Point, North Carolina; (2) students from Guilford County, North Carolina; and (3) students from North Carolina. (Recipients are chosen by the Office of Undergraduate Admissions at the time of application.)

Alice Mack Scholarship. The endowment, established in 1996, provides scholarship support for undergraduate students in Trinity College of Arts and Sciences and Edmund T. Pratt Jr. School of Engineering and for graduate students enrolled in any of Duke University’s professional schools or programs. First preference shall be given to needy students from Mooresville, North Carolina, and then to needy students from Iredell County, North Carolina. Awards shall be determined in accordance with University guidelines then in use and may include grants and grants-in-lieu of loans. Should there be no needy graduate or professional student from the designated area, that portion of the income (25%) shall be directed to the A.F. Calabrese Endowment in the Fuqua School of Business.

Alyse Smith Cooper Scholarships. Each year scholarships of various amounts are awarded to students demonstrating both merit and need. Preference is given to students from Alamance County, North Carolina.

Braxton Craven Endowed Scholarships. Recipients of these scholarships will receive an amount equal to the current tuition at Duke. Braxton Craven scholars will be chosen on the basis of outstanding academic and extracurricular achievement and need. First preference is given to students from North Carolina. The scholarships are renewable, provided that the recipient complies with the specified academic requirements.

The John M. and Sally V. Blalock Beard Scholarship. These scholarships are awarded annually to outstanding students from the Wake County area of North Carolina who major in English or the history of the United States. These awards are based on financial need, scholarship, character, and academic achievement.

North Carolina Legislative Tuition Grant. The North Carolina General Assembly has established a program of tuition grants available to North Carolina residents who are full-time students at private colleges and universities in the state of North Carolina. The grant for each eligible student is approximately $1,950 per year. Applications will be mailed to all eligible students during the summer. In the case of a need-based financial aid recipient, this grant reduces a student's tuition and therefore his budget. All qualified need-based aid recipients are required to apply for this grant.

State Contractual Scholarships for Needy North Carolinians. Funds provided by the state of North Carolina through the Legislative Grant Program are distributed to needy North Carolinians qualifying for the State Contractual Scholarship Program. Application is made through the College Scholarship Service's PROFILE.

Loans. The loan programs which are available to students through Duke University are listed below:

Federal Perkins Loan. Loan funds supplied by the federal government and Duke University through Part E of Title IV of the Higher Education Act of 1965 are available to qualified students. Repayment of loans under this act normally begins six months after the student has graduated or leaves college, with complete payment scheduled within a ten-year period. Interest accrues at the rate of 5 percent annually, commencing nine months after the borrower ceases to be at least a half-time student at an institution of higher education. This loan is part of the student's financial aid award.

Federal Stafford Student Loan Program. Loans under the Federal Stafford Student Loan program are available from banks or other incorporated state lending agencies. Duke University can arrange an alternate lender for students who are unable to obtain these loans through their home state agencies or local banks. Need as established by the federal government's formula will be considered in the university's decision regarding applications. The annual limit on a loan, which has a variable interest rate that is capped at
6.8 percent, is $3,500 for freshmen, $4,500 for sophomores, and $5,500 for juniors and seniors. Repayment begins six months after the student leaves school.

Students may apply for Stafford loan funds by submitting a loan application directly to the External Loan Aid Office. In addition, loan applicants must submit the Free Application for Federal Student Aid to the federal processor. Additional information about this loan program may be obtained from the Undergraduate Financial Aid Office.

**Federal Parents’ Loan for Undergraduate Students Program.** Parents may borrow up to the cost of education less financial aid through the Federal Parent Loan for Undergraduate Students (PLUS) program. Repayment of these loans begins sixty days after loan disbursement. Interest is based upon treasury bill rates but will be no higher than 8.5 percent and begins to accrue at the point repayment begins. Interested parents should contact their home state lending agency or the financial aid office.

**Federal Unsubsidized Stafford Loan Program.** All undergraduate students, regardless of need, are eligible to borrow an Unsubsidized Stafford Loan. The loan limits and the interest rate are the same as for the subsidized Stafford Loan described above. Although repayment of the principal begins six months after the student leaves school, interest payments begin 45 days after the first disbursement of the loan.

**Duke Signature Select Loan** is an alternative educational loan program developed specifically to help students meet the costs of higher education. Students with a credit-worthy co-signer may borrow up to $15,000. Principal and interest payments can be deferred until after the completion of the borrower’s education. For more information consult the External Loan Office.

**Excel Loans.** "Excel" is a supplemental educational loan program developed specifically to help families meet the costs of higher education. Credit-worthy families, regardless of income, may be eligible to borrow through this program. Annual loan amounts range from $2,000 to up to the cost of education less financial aid. The interest rate is variable, and Share offers several repayment options. For information call 1-800-EDU-LOAN.

**Tuition Plans.** Many families finance a college education with the assistance of an insured tuition payment plan regardless of whether they receive financial assistance from Duke. The university is pleased to offer a ten- or twelve-month payment plan through Tuition Management Systems. More information can be obtained from the bursar’s office.

**Employment.** Most financial aid recipients are offered a job as part of their aid package. The money is paid directly to the student. The Office of Undergraduate Financial Aid maintains part-time employment listings for the campus and Durham area. All students interested in working during the school year should review the jobs listing in the career counseling section of the Duke Home Page (www.duke.edu). Every effort will be made to help students find jobs consistent with their interests.

Duke University also expects that students receiving financial aid will work during the summer. In the year before entering college, a freshman should save a minimum of $1,900 for use during the first year of college. In subsequent years, minimum student earnings will be $2,200 for sophomores, $2,300 for juniors, and $2,400 for seniors. These figures are viewed as estimates and are revised consistent with actual earnings.

Duke University offers subsidized employment opportunities to many students not qualifying for need-based financial aid. Interested students should submit the appropriate aid applications.
Courses and Academic Programs
Definition of Terms

The following portion of this bulletin, arranged alphabetically, includes courses of academic departments, programs, sections, and institutes, as well as categories of courses. Details are provided in the individual entries, which indicate whether a major, a minor, and/or a certificate is available in that particular field. (A certificate, offered in some programs, is not a substitute for a major but is a supplement, confirming that a student has satisfied the requirements of that program.)

Courses taught in recent years or scheduled for 2008-2009 are included in this chapter with full descriptions. For courses that will be offered in 2008-2009, also consult the online ACES Schedule of Courses.

Introductory-level courses are numbered below 100; advanced-level courses are numbered 100 and above. Courses numbered 1 through 49 are primarily for first-year students; courses numbered from 200 through 299 are primarily for seniors and graduate students. (See the section on course load and eligibility in the chapter “Academic Procedures and Information.”) Special Topics courses may be repeated (if the subtitles of the courses are different), subject to any limitation set forth in the course description in this bulletin.

The following symbols, suffixed to course numbers, identify small classes: S, seminar; P, preceptorial; T, tutorial; D, discussion section (for a larger class). The L suffix indicates that the course includes laboratory experience. C-L: denotes a course that is cross-listed or a program under which a course is also listed.

Curriculum codes appear at the end of course titles. An explanation of the curriculum codes follows:

Areas of Knowledge:
- Arts, Literatures, and Performance (ALP)
- Civilizations (CZ)
- Natural Sciences (NS)
- Quantitative Studies (QS)
- Social Sciences (SS)

Modes of Inquiry:
- Cross-Cultural Inquiry (CCI)
- Ethical Inquiry (EI)
- Science, Technology, and Society (STS)
- Foreign Language (FL)
- Research (R)
- Writing (W)

Trinity College of Arts and Sciences
Professor Thompson, Dean of Trinity College and of Arts and Sciences; Senior Associate Dean for Administration Wilson; Associate Deans Bryant, Gilbert, Keul, Nijhout, Riley, and Walther; Assistant Deans Blackmon, Kostyu, Lattimore, McKay, Rasmussen, and White

Aerospace Studies—Air Force ROTC (AEROSCI)
Professor Wroth, Lieutenant Colonel, USAF, Director of Undergraduate Studies; Assistant Professor Hill, Captain, USAF, Commandant of Cadets; Assistant Professor Fletcher, Captain, USAF, Unit Admissions Officer

Eligibility Requirements. All freshmen and sophomores are eligible to enroll in the General Military Course in the Air Force Reserve Officer Training Corps. For enrollment in the Professional Officer Course, the student must have completed successfully the General Military Course and a field training encampment; must execute a written agreement with the government to complete the Professional Officer Course; must be sworn into the enlisted reserve; and must agree to accept a commission in the U.S. Air
Force upon graduation. Students in the General Military Course and Professional Officer Course are required to attend two hours of leadership laboratory each week. All courses, except 2L, are open to all other students with consent of instructor.

**General Military Courses**

**First Year**

**2L. Leadership Laboratory.** Instruction in drill and ceremonies, wearing the uniform, giving commands, and other leadership activities. Mandatory for all Air Force ROTC cadets. Must be repeated each semester. Pass/fail grading only. Instructor: Staff.


**Second Year**

**51. The Evolution of US Air and Space Power.** A survey course designed to examine the general elements and employment of air and space power, from an institutional doctrinal and historical perspective. From the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples to demonstrate the evolution of what has become today's USAF air and space power. Air Force Core Values and communications skills. Leadership Laboratory mandatory for AFROTC cadets. Instructor: Staff. Half course.


**Professional Officer Courses**

All students selected to continue in Aerospace Studies must pursue the following courses.

**Third Year**

**105S. Air Force Leadership and Management.** Leadership and management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Training philosophy, counseling/feedback, leadership vs. management, leadership principles and perspectives, effective delegation, and written and verbal communication skills. Laboratory required for AFROTC cadets. Instructor: Staff. One course.

**106S. Air Force Leadership and Management.** Continuation of Aerospace Studies 105S. Principle centered/situational leadership, case studies of different leadership styles, ethical behavior, effective management tools to evaluate and improve processes, building and refining written and verbal communication skills from 105S. Laboratory required for AFROTC cadets. Instructor: Staff. One course.

**Fourth Year**

**205S. Defense Studies.** The national security process, regional studies, advanced leadership ethics, and Air Force doctrine. The military as a profession and current issues affecting military professionalism. American tradition in foreign policy, cold war challenges, the relationship with the president and Congress, the chain of command, national security issues, and advanced level briefings and papers. Leadership Laboratory mandatory for AFROTC cadets. Instructor: Wroth. One course.

**206S. Defense Studies.** Continuation of Aerospace Studies 205S. Officership, ethics, military law, Air Force issues, roles and missions, Air Force and joint doctrines, preparation
for active duty, and refining communications skills from 205S. Leadership Laboratory mandatory for AFROTC cadets. Instructor: Wroth. One course.

**African and African American Studies (AAAS)**

Associate Professor Piot, **Interim Director**; Assistant Professor Makhulu, **Director of Undergraduate Studies**; Professors Darity, Holloway, James, McClain, Neal, and Powell; Associate Professors Baker, Crichtlow, Glymph, Haynie, Lubiano, Piot, and Wallace; Assistant Professors Holsey and Makhulu

A major or a minor is available in this program.

The program in African and African American Studies provides students with an interdisciplinary approach to the field, within which they may focus on Africa or the Americas. The program encourages study abroad in Africa, available through the Office of Study Abroad.

The African and African American Studies courses are listed below. (Full descriptions of cross-listed courses may be found in the bulletin course listings of the particular department or program cited in the cross-listing, for example, Music 74.) In addition, Arabic language courses are taught in the Asian and African Languages and Literature Program, and other relevant language courses in the Department of Romance Studies.

**49S. First-Year Seminar.** Topics vary each semester offered. Instructor: Staff. One course.


**70. Topics on the Third World and the West.** CCI, CZ One course. C-L: see History 75; also C-L: Latin American Studies, International Comparative Studies

**71. Topics on the Third World and the West.** CCI, CZ One course. C-L: see History 76; also C-L: Latin American Studies, International Comparative Studies

**74. Introduction to Jazz.** ALP, CCI One course. C-L: see Music 74

**74D. Introduction to Jazz.** ALP, CCI One course. C-L: see Music 74D

**88FCS. Focus Program Seminars.** Topics vary semester to semester. Open only to students in the Focus Program. Instructor: Staff. One course.

**99. Special Topics.** Topics vary from semester to semester. Instructor: Staff. One course.


**101. Film and the African Diaspora.** ALP, CCI, SS Theories and issues of representation and practice, with specific attention to culture, nation, and gender in contemporary and historic black films and filmmakers of Africa and the Diaspora. Instructor: Lubiano. One course. C-L: Visual Studies 104A, Film/Video/Digital


**104. Special Topics.** Topics vary from semester to semester. Instructor: Staff. One course.

**104S. Special Topics.** Seminar version of African and African American Studies 104. Instructor: Staff. One course.

**106A. Introduction to African and African American Studies.** CCI, CZ, SS A range of disciplinary perspectives on key topics in African American Studies: slavery and abolitionism, theories of race and racism, gender and race, the era of Jim Crow, cultural expressions, political and intellectual thought, African American freedom struggles from the seventeenth through the twentieth centuries, and race and public policy. Instructor: Staff. One course.

**106B. Introduction to African and African American Studies.** CCI, CZ, W Same as 106A, except writing across discipline course. Not open to students who have taken African and African American Studies 106 or 106A. Instructor: Staff. One course.


110A. **West African Rootholds in Dance. ALP, CCI** One course. C-L: see Dance 110A; also C-L: Asian and African Languages and Literature 110A, Cultural Anthropology 129A, Religion 161A

110B. **West African Rootholds in Dance. ALP, CCI** One course. C-L: see Dance 110B; also C-L: Asian and African Languages and Literature 110B, Cultural Anthropology 129B, Religion 161B

112S. **Freedom Stories: Documenting Southern Lives and Writing. ALP, CCI, CZ** One course. C-L: see Documentary Studies 112S; also C-L: History 150ES

113B. **Europe's Colonial Encounter, 1492-1992. CCI, CZ, EI** One course. C-L: see History 113B; also C-L: Ethics

115A. **History of Africa: From Antiquity to Early Modern Times. CCI, CZ** One course. C-L: see History 115A; also C-L: Women's Studies, International Comparative Studies

115B. **History and Modern Africa. CCI, CZ, SS** One course. C-L: see History 115B; also C-L: Women's Studies, International Comparative Studies

116. **Comparative Race and Ethnic Studies. CCI, EI, R, SS** One course. C-L: see Sociology 116; also C-L: Children in Contemporary Society

121. **Introduction to Asian and African Literature. ALP, CCI** One course. C-L: see Asian and African Languages and Literature 121; also C-L: Literature 165C, International Comparative Studies

122. **Culture and Politics in Africa. CCI, CZ, SS** Explores the politics, history and culture of societies and nation-states across the continent while also critiquing Euroamerican discourses, images, and theories about Africa and Africans. Readings consist of not only anthropological texts- some classic, and some experimental and off-beat- but also media accounts, novels and historical texts. Instructor: Piot. One course. C-L: Cultural Anthropology 122, Visual Studies 104B, International Comparative Studies

124S. **Slave Society in Colonial Anglo-America: The West Indies, South Carolina, and Virginia. CCI, CZ, R** One course. C-L: see History 124S; also C-L: International Comparative Studies

125S. **Behind the Veil: Methods. CCI, CZ, R** One course. C-L: see Documentary Studies 125S; also C-L: History 129S

126S. **The Press and the Public Interest. SS** One course. C-L: see Public Policy Studies 127S; also C-L: Policy Journalism and Media Studies

127A. **The Caribbean, 1492-1700. CCI, CZ** One course. C-L: see History 127A; also C-L: Latin American Studies, International Comparative Studies

127B. **The Caribbean in the Eighteenth Century. CCI, CZ** One course. C-L: see History 127B; also C-L: International Comparative Studies 151B, Latin American Studies


131. **The South in Black and White. ALP, CCI, CZ** One course. C-L: see Documentary Studies 132

131S. **African Mbira Music: An Experiential Learning Class. ALP, CCI, CZ** One course. C-L: see Music 133S; also C-L: Cultural Anthropology 133S
132. **Black Popular Culture. CCI, CZ** The production and circulation of African American popular cultural forms including, but not limited to, popular literature, music, film, television, and art in the twentieth century. The ways in which African American popular culture may reflect the particular values and ethos of African Americans and the larger American society. Topics may include black cinema, blues and jazz music, black nationalism, hip hop, black social movements, blacks and sports culture, popular dance, and the cultural history of black style. Instructor: Lubiano, Wallace, and staff. One course. C-L: Visual Studies 104C

134. **Psychology of Ethnicity and Context. CCI, SS** One course. C-L: see Psychology 133; also C-L: Global Health

135S. **Diaspora Literacy: Black Women Novelists of the Third World. ALP, CCI** Contemporary fiction of black women writers from West Africa, the Caribbean, and the United States. Representations of cultural and national identities, patterns of language, figurative representations, and the revised histories as structured and framed within imaginative literatures. Issues of colonialism and slavery as background. Instructor: Holloway. One course.

137. **African American Women and History. CCI, CZ** The history of African American women in the United States. The production of discourses of gender, race, and class discrimination that evolved specifically to confront the presence of African American women first as slaves and later as free women. The ways in which prevalent ideas about race, race relations, and gender coalesced around images of the African American women and African American women's struggles to assert independent identities. Multidisciplinary readings. Instructor: Glymph. One course. C-L: History 145C, Women's Studies 137

138S. **Francophone Literature. ALP, CCI, FL** One course. C-L: see French 161S; also C-L: Asian and African Languages and Literature 168S, International Comparative Studies 110CS, History 162S, Latin American Studies, Canadian Studies

140S. **Brazilian Popular Culture. ALP, CCI, CZ, FL** One course. C-L: see Portuguese 140S; also C-L: Cultural Anthropology 140AS, Visual Studies 126BS

145A. **Africans in America to the Civil War. CCI, CZ, EI** One course. C-L: see History 145A; also C-L: Documentary Studies

145B. **African Americans Since the Civil War. CCI, CZ, EI** One course. C-L: see History 145B; also C-L: Documentary Studies

147. **Urban Education. CCI, SS** An interdisciplinary examination of contemporary educational problems in American cities, with particular attention to race and class, and the formation of public policy for urban schools and school reform. Instructor: Payne. One course. C-L: Education 147, Sociology 136, Children in Contemporary Society

149. **Introduction to Racial and Ethnic Minorities in American Politics. CCI, SS** One course. C-L: see Political Science 141

149D. **Introduction to Racial and Ethnic Minorities in American Politics. CCI, SS** One course. C-L: see Political Science 141D

150. **Religions of the African Diaspora. CCI, CZ, SS** Diasporic religious expression and practice, from Africa to the Americas. Special attention to the relationship between religion and history, both during slavery and beyond, as well as to the social, gendered, aesthetic, and more strictly religious forces that lie at the heart of Black diasporic religious expression. Instructor: Staff. One course. C-L: Cultural Anthropology 150, Religion 160, International Comparative Studies

156. Modern and Contemporary African American Art. ALP, CCI, CZ, R One course. C-L: see Art History 176

157. Art, Architecture, and Masquerade in Africa. ALP, CCI, CZ, R One course. C-L: see Visual Studies 101F; also C-L: International Comparative Studies 110A

158. Dance and Religion in Asia and Africa. ALP, CCI, CZ One course. C-L: see Dance 158; also C-L: Asian and African Languages and Literature 136, Cultural Anthropology 149C, Religion 161N, International Comparative Studies 102A

162AS. Social Facts and Narrative Representations. ALP One course. C-L: see Literature 162AS

163. The Civil Rights Movement. CCI, CZ, EI, SS One course. C-L: see History 163E; also C-L: Ethics

168S. The Atlantic Slave Trade. CCI, CZ, R One course. C-L: see History 168BS; also C-L: International Comparative Studies 103FS, Latin American Studies

170. Afro-Brazilian Culture and History. CCI, CZ, R One course. C-L: see History 170C; also C-L: Portuguese 170C, Latin American Studies

171. From Apartheid to Democracy in South Africa. CCI, EI, SS One course. C-L: see Political Science 171; also C-L: International Comparative Studies 110B

173. African American Literature. ALP, CCI, R One course. C-L: see English 164A

174. African American Literature. ALP One course. C-L: see English 164B

177S. Race and Equity. SS One course. C-L: see Public Policy Studies 173S; also C-L: Policy Journalism and Media Studies

178. African American Intellectual History, Twentieth Century. CCI, CZ, W One course. C-L: see Cultural Anthropology 175; also C-L: History 176B

179. Separation and Inclusion. SS One course. C-L: see Public Policy Studies 174; also C-L: Policy Journalism and Media Studies


182. A-F. African American Literary Genres (DS3 or DS4). ALP, CCI, R One course. C-L: see English 166

183S. Africa and the Slave Trade. CCI, EI, SS History of the Atlantic slave trade in Africa, various responses to it, debates regarding its impact, ways it is remembered today. Instructor: Holsey. One course. C-L: Cultural Anthropology 122B

190A. Independent Study. Individual research and reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to juniors and seniors. Consent of both instructor and director of undergraduate studies required. Instructor: Staff. One course.

190B. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to juniors and seniors. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

191A. Independent Study. See African and African American Studies 190A. Consent of both instructor and director of undergraduate studies required. Instructor: Staff. One course.

191B. Research Independent Study. R See African and African American Studies 190B. Consent of both instructor and director of undergraduate studies required. Instructor: Staff. One course.

192H. The African Diaspora. CCI, CZ, SS An exploration, ranging from Africa to the Americas and Europe, of histories of slavery and colonialism in the Black Atlantic and genealogies of diasporic identification. Multidisciplinary readings from anthropology,
history, literature, and art history. Instructor: Piotr or Thomas. One course. C-L: Cultural Anthropology 191H, International Comparative Studies

**194A. Distinction Program Sequence.** Research for the development of thesis. Open only to senior majors. Consent of both instructor and director of undergraduate studies. Instructor: Staff. One course.

**194B. Distinction Program Sequence.** Continuation of African and African American Studies 194A Open only to senior majors. Consent of both instructor and director of undergraduate studies. Instructor: Staff. One course.

**195S. Fugitive Slave (Maroon) Communities in New World Slave Societies. CCI, CZ** Also taught as History 195S or 196S. Instructor: Gaspar. One course. C-L: International Comparative Studies

**198S. Senior Seminar.** Open to seniors majoring in African and African American Studies and to others with consent of instructor. Instructors: Staff. One course.

**199. Special Topics.** Topics vary from semester to semester. Instructor: Staff. One course.

**199S. Special Topics.** Seminar version of African and African American Studies 199. Topics vary from semester to semester. Instructor: Staff. One course.

**200S. Seminar in Asian and African Cultural Studies. CZ** One course. C-L: see Asian and African Languages and Literature 200S; also C-L: Cultural Anthropology 288S, Literature 200S

**213S. African Modernities. CCI, SS** Encounters between African societies and global forces, including colonialism, capitalism, development initiatives. Instructor: Holsey. One course. C-L: Cultural Anthropology 203S, International Comparative Studies

**229S. Poverty, Inequality, and Health. EI, R, SS** One course. C-L: see Public Policy Studies 229S

**254. Justice, Law, and Commerce in Islam. CZ, EI** One course. C-L: see Religion 254; also C-L: Medieval and Renaissance Studies 254, International Comparative Studies, Islamic Studies

**262S. Minority Mental Health: Issues in Theory, Treatment, and Research. CCI, SS** One course. C-L: see Psychology 262S

**269S. Harlem Renaissance. ALP, CCI, CZ, R** One course. C-L: see Visual Studies 220S

**278S. Race and American Politics. CCI, SS** One course. C-L: see Political Science 278S; also C-L: Public Policy Studies 278S

**279S. Race, Racism, and Democracy. CCI, SS, W** One course. C-L: see Cultural Anthropology 279S

**297S. Teaching Race, Teaching Gender. CCI, SS** Interdisciplinary analyses of the problems of teaching about social hierarchies, especially those of race, class, and gender. Curricular content and its interaction with the social constructions of students and teachers. Instructor: Lubiano. One course. C-L: Women's Studies 297S, History 297S, Literature 225S

**299. Special Topics.** Topics vary from semester to semester. Instructor: Staff. One course.

**299S. Special Topics.** Seminar version of African and African American Studies 299. Instructor: Staff. One course.

**THE MAJOR**

The major requires ten courses, eight of which must be at the level of 100 or above. Students may choose one of the two following options.

**A. The Americas Focus**

**Major Requirements:**

2. Three courses focusing upon the Americas, one course in each of the following
areas:
  a. Arts or Literature
  b. History
  c. Social, Religious, Economic, or Political Institutions/Processes.
3. African and African American Studies 198S (Senior Seminar).
4. Four additional African and African American Studies courses.

**B. Africa Focus**

**Major Requirements:**
2. Three courses focusing upon Africa, one course in each of the following areas:
   a. Arts or Literature
   b. History
   c. Social, Religious, Economic, or Political Institutions/Processes.
3. African and African American Studies 198S (Senior Seminar).

**THE MINOR**

The minor requires five courses, two of which must be African and African American Studies 106 and 107, and three of which must be at the level of 100 or above. Courses must be selected in each of the following areas:
1. Arts or Literature
2. History
3. Social, Religious, Economic, or Political Institutions/Processes.

*N.B.* Both program foci (Africa and the Americas) must be represented in the three-course selection.

**Departmental Graduation with Distinction**

The program offers work leading to Graduation with Distinction. See the section on honors in this bulletin and contact the director of undergraduate studies.

**Foreign Languages**

The program recommends that majors complete at least two years of college-level study, or equivalent, of a foreign language. Students interested in additional study of African or Diaspora cultures are strongly encouraged to study an African or Caribbean language.

**Animal Behavior**

For courses in animal behavior, see Biology.

**Anthropology**

See the Department of Biological Anthropology and Anatomy and the Department of Cultural Anthropology for information about those majors.

**Arabic**

For courses in Arabic, see Asian and African Languages and Literature.

**Art, Art History, and Visual Studies (ARTSVIS/ARTHIST/VISUALST)**

Professor Van Miegroet, Chair; Professor Stiles, Director of Undergraduate Studies; Professors Antliff, Bruzelius, Leighton, Lenoir, McWilliam, Powell, Stiles, Van Miegroet, and Wharton; Associate Professors Abe, Dillon, and Weisenfeld; Assistant Professor Gabara; Associate Professors of the Practice Noland, Rankin, and Shatzman; Assistant
Majors and minors in art history, visual arts, art history/visual arts, visual studies, and photography are available in this department.

ART HISTORY (ARTHIST)

Art history is the study of works of art in the context of the broader social, political, and intellectual cultures of which they are a part. Studying art history develops the ability to evaluate and organize information, visual as well as verbal; it also enhances the faculties of creative imagination, precise observation, clear expression, and critical judgment. Students of art history acquire a sophisticated understanding of the theory and practice of artistic production and reception.

A major or second major in art history provides basic training for those interested in teaching, museum and gallery work, art publishing, and advertising; the major also furnishes an appropriate background for graduate training in architecture. Art history's emphasis upon careful observation, the ordering of diverse sorts of information, expository writing, and scholarly research makes it a good general preparation for any profession.

20. Basic Art History. Credit for Advanced Placement on the basis of the College Board examination in art history. Does not count toward the major in art history or design. One course.

49S. First-Year Seminar. ALP, CZ, R Topics vary each semester offered. Instructor: Staff. One course.

60. Duke-Administered Study Abroad: Special Topics in Art History. ALP, CZ Topics differ by section. Instructor: Staff. One course.

69. Introduction to the History of Art. ALP, CCI, CZ The history of western architecture, sculpture, and painting in a cultural context from prehistory to the Renaissance (c. 1400). Instructor: Staff. One course.

69D. Introduction to the History of Art. ALP, CCI, CZ Same as Art History 69, except instruction provided in two lectures and one small discussion meeting each week. Instructor: Staff. One course.

70. Introduction to the History of Art. ALP, CCI, CZ Continuation of Art History 69. From the Renaissance to the present. Instructor: Staff. One course.

70D. Introduction to the History of Art. ALP, CCI, CZ Same as Art History 70 except instruction provided in two lectures and one small discussion meeting each week. Instructor: Staff. One course.

71. Introduction to Asian Art. ALP, CCI, CZ The visual arts of Asia, primarily Chinese and Japanese sculpture, painting, and architecture: selected works in their historical context; the multiple ways in which the works have been understood in the past as well as the present. A range of art historical approaches and methods. Instructor: Abe or Weisenfeld. One course. C-L: International Comparative Studies

80FCS. Topics in Art History. ALP, CZ Subjects, areas, or themes that embrace a range of disciplines, art historical areas, and visual culture. Open only to students in the Focus Program. Instructor: Staff. One course.

95S. Special Topics in Art History. ALP Subjects, areas, or themes that embrace a range of disciplines or art historical areas. Instructor: Staff. One course.

97. Visual Culture Outside the United States, I. ALP, CZ Course in the visual arts and/or architecture taught in Duke programs abroad. Instructor: Staff. One course.

98. Visual Culture Outside the United States, II. ALP, CZ See Art History 97. Instructor: Staff. One course.
100. Perspectives on Information Science and Information Studies. CZ, STS One course. C-L: see Information Science and Information Studies 100; also C-L: Visual Studies 120A

102S. Contemporary Art and Culture in New York. ALP, CZ Offered in the Leadership and the Arts Program in New York. Instructor: Staff. One course.

103. Representing Women in the Classical World. ALP, CCI, CZ The lives of women in the Classical world viewed through the visual culture of Classical art. Through images of women in statues, reliefs, coins, and painting, the course explores the role of visual representation in communicating complex social and political messages. Issues such as the construction of gender, the expression of power and status, the preservation of social hierarchies, the protection of normative values, and the manipulation and control of sexuality are considered. Instructor: Dillon. One course. C-L: Classical Studies 103, Visual Studies 101A

105. Art in the Hellenistic Age. ALP, CCI, CZ The paintings, statues, and buildings of the Hellenistic kingdoms, in such culturally diverse places as Greece, Turkey, Egypt, Syria, Iraq, and Afghanistan, within context of such issues as power, ritual, acculturation, resistance, and "Hellenization." Spectacle culture in the Hellenistic world, questions of reception and memory, and more traditional art-historical themes of patronage and stylistic change. The vital role played by art in defining and expressing cultural change. Instructor: Dillon. One course. C-L: Classical Studies 132

106. Hellenistic Architecture. ALP, CCI, CZ Survey of the major architectural traditions during the great age of Greek and Macedonian colonization, which saw important developments in urbanism and city planning. Focus on political, social, aesthetic, and technical aspects of Hellenistic architecture and the profound impact that the architectural forms of the period had on the city of Rome. Instructor: Dillon. One course. C-L: Classical Studies 141

110. Gothic Cathedrals. ALP, CCI, CZ, R Great cathedrals of Europe in England, Germany, and Italy, with a special focus on France, from roughly 1140 to 1270, and their construction, financing, and role in the fabric of medieval city life. The urban context of each city, the history of the site and its relics, and the artistic and technological developments that made the construction of these complex and large-scale structures possible. A consideration of Romanesque precedents and the origins of the various structural elements of Gothic architecture. Instructor: Bruzelius. One course. C-L: Medieval and Renaissance Studies 112A

111. Medieval Architecture. ALP, CCI, CZ, R A survey of the origins and development of medieval church architecture from Late Antiquity to the High Middle Ages in the Mediterranean and Europe north of the Alps concentrating on the effects of the cult of relics, the inclusion of burials, the segmentation of the lay public, and different types of liturgical requirements on the shapes and spaces of religious buildings; the origins and development of fortifications and castles. Emphasis on monastic architecture and especially the buildings of the mendicant orders. Instructor: Bruzelius. One course. C-L: Medieval and Renaissance Studies 112B

113. Eighteenth-Century Art and Architecture. ALP, CCI, CZ The visual arts and esthetic issues in the development of modern culture in Europe and the relationship between artists and the public in the period of the Enlightenment. Considering all media, including painting, sculpture, prints, architecture and gardens, topics may include the rise of academies, the development of art criticism, the role of the spectator in art; the involvement of women in art and its institutions; historical and theoretical discussions of rococo and neoclassical styles; the idea of revolutions in history; Rousseau and the cult of nature; and the impact of new philosophical trends on aesthetic theory. Instructor: Staff. One course.

114. The Aegean Bronze Age. ALP, CCI, CZ One course. C-L: see Classical Studies 155

121. Visualizing Cultural Dissent in Modernism, 1880-1945. ALP, CCI, CZ. Interrelations of modernism and politics in a period of rapid social and technological change, rise of mass social movements, and political reaction on left and right. Development of new media in the form of prints and photography reflecting these changes and a variety of social movements and political positions by artists exploring a range of subjects, media, and exhibition venues from large-scale paintings in the annual state-sponsored salons to political satire in the press. Instructor: Leighten. One course. C-L: Visual Studies 101B

122. Introduction to Documentary Film. ALP, CCI. One course. C-L: see Film/Video/Digital 102; also C-L: Literature 120E, Documentary Studies 107, Visual Studies 117C

123. Early Greek Archaeology: From the Fall of Mycenae to the Persian Wars. ALP, CCI, CZ, W. One course. C-L: see Classical Studies 123

124. Greek Art and Archaeology II: Classical to Greco-Roman. ALP, CCI, CZ, W. One course. C-L: see Classical Studies 124

125A. Art and Archaeology of Ancient Athens. ALP, CCI, CZ. Monuments, archaeology, art, and topography of ancient Athens from the Archaic to the Roman period. Examination of the physical remains of the city and countryside to trace the development of one of the most important city-states in the Greek world and to understand its impact on western civilization. Case study in understanding the role of archaeology in reconstructing the life and culture of the Athenians. Instructor: Dillon. One course. C-L: Classical Studies 126

126A. Rome: History of the City. ALP, CCI, CZ. One course. C-L: see Classical Studies 145; also C-L: History 101F

128. Art of the Roman Empire. ALP, CCI, CZ. Art in the Roman world from Augustus to Theodosius. Emphasis on portraiture, private arts, and triumphal monuments; Rome's cultural imperialism and the impact of foreign cultural traditions on the evolution of Roman art. Instructor: Staff. One course. C-L: Classical Studies 128

134. Topics in Medieval Art and Architecture. ALP, CCI, CZ. Specific problems dealing with contextual and cultural issues in medieval art and architecture from c. 300 to 1400. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 131C

135A. Topics in Italian Art and Architecture. ALP, CCI, CZ. Topics vary from year to year. Consent of instructor required. (Taught in Italy.) Instructor: Staff. One course.

136. Film Genres. ALP. One course. C-L: see Film/Video/Digital 106; also C-L: Literature 120F, English 186B, Visual Studies 117F

139. The Living Middle Ages. ALP, CCI, CZ. One course. C-L: see Medieval and Renaissance Studies 114; also C-L: Classical Studies 139, History 116, English 123C

139S. Aspects of Medieval Culture. ALP, CCI, CZ. One course. C-L: see Medieval and Renaissance Studies 114S; also C-L: Classical Studies 139S, History 116S, English 123CS

140. Topics in Renaissance Art. ALP, CCI, CZ. Specific problems dealing with the iconography, style, or an individual master from c. 1300 to 1600. Subject varies from year to year. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 140C

141. Fifteenth-Century Italian Art. ALP, CCI, CZ, R. Painting, sculpture, and the related arts, 1400-1500. The art of the early Renaissance in its historical, social, and cultural context. Contributions of individual masters from Masaccio and Donatello to Botticelli and Mantegna. Emphasis on the art of Florence and central Italy. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 141


143. The Art of the Counter Reformation. ALP, CCI, CZ, R. Religious art in Catholic Europe during and following the Council of Trent. Rise of the new religious orders; the
revival of interest in the early Church and the origins of Christian archaeology; the cult of saints and the veneration of relics; the Church's use of art in its campaign against Protestantism; papal patronage and the monumentalization of Rome. Considers the validity of the concept of a counter-reformation style. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 143

144A. Renaissance and Baroque Art History. ALP, CCI, CZ Introduction to the development of painting, sculpture, and architecture in Rome from the fifteenth to the early seventeenth centuries, focusing on the patronage of the Popes and the Papal court. Consent required. (Taught at the Intercollegiate Center for Classical Studies in Rome.) Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 144B

144B. Renaissance and Baroque Art History. ALP, CCI, CZ Introduction to the development of painting, sculpture, and architecture in Rome from the fifteenth to the early seventeenth centuries, focusing on the patronage of the Popes and Papal court. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 137

149. Aspects of Renaissance Culture. ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 115; also C-L: History 148A, Italian 134, English 123E

151. Art of Italy in the Seventeenth Century. ALP, CCI, CZ, R Painting, sculpture, and the related arts: 1580-1700. The historical, social, and cultural context of artistic production in Baroque Italy; emphasis on the contributions of Caravaggio, the Carracci, Guido Reni, Bernini, Poussin. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 151C, International Comparative Studies

152. Women Writers of the Renaissance: Spain and England. ALP, CCI, CZ One course. C-L: see Spanish 152; also C-L: English 123F


166. Art in Europe, 1850-1900. ALP, CCI, CZ The second half of the nineteenth century in Europe with particular emphasis on realism, impressionism, postimpressionism, and


168. Experimental Art and Its Ethics since 1945. ALP, CCI, CZ, EI Major avant-garde movements of the post-World War II era covered globally, from abstract expressionist painting to multimedia interactive art, all of which concentrate on the social, political, and cultural impact of experimental art after the atomic age and in the aftermath of the Holocaust, continuing into the post-biological age of genetic engineering. Focus on the vast changes that have occurred in art and its media since 1945 and the moral and ethical roles that art plays in shaping culture and in reflecting its social exigencies. Instructor: Stiles. One course. C-L: Women's Studies 168, Literature 133B, International Comparative Studies 101A, Ethics


177A. Topics in Nineteenth Century European Art. ALP, CCI, CZ Focus on a major aspect of nineteenth century European art. Subject varies from year to year. Instructor: Staff. One course.

177B. Topics in Twentieth Century Art (TOP). ALP, CCI, CZ Focus on a major aspect of Twentieth century European art. Subject varies from year to year. Instructor: Staff. One course.

177C. Topics in Contemporary Art. ALP, CCI, CZ Focus on a major aspect of contemporary European art. Subject varies from year to year. Instructor: Staff. One course.

177E. Topics in History of Photography. ALP, CZ Focus on periods, cultures and major ethical, social and political issues in the history of the photographic medium. Subject varies from year to year. Instructor: Leighten. One course.

177FS. Special Topics in Art History. Subjects, areas, or themes that embrace a range of disciplines or art historical areas. Consent of instructor required. Instructor: Staff. One course.

177G. Topics in Visual Studies. ALP, CZ, STS A Cultural history of the televisual beginning with television and ending with multimedia. Instructor: Staff. One course.

177S. 20th Century Latin American Photography. CCI, CZ, FL One course. C-L: see Spanish 177S; also C-L: International Comparative Studies 132BS, Visual Studies 126KS, Latin American Studies
178A. History and Theory of Modern and Postmodern Sculpture. ALP, CCI, CZ, R
Changes in the notion of sculpture in the twentieth century, from Rodin to the present and global avant-garde; shifts from discrete objects, assemblages, environments, and installations to concepts, technologies, the body, and social activism, changes in notions of materials, space, site, and intervention as visual expressions of parallel transformations in social and political ideas regarding the role of the artist and sculpture in culture. Instructor: Stiles. One course.

180B. Later Japanese Art. ALP, CCI, CZ, EI
Japanese visual culture from the end of the sixteenth century to the contemporary period encompassing the country's unification under Tokugawa rule and later emergence on the world stage through painting, sculpture, architecture, ceramics, decorative arts, photography, and print media. The relationship between artistic production and Japanese sociopolitical development seen through the critical issues of religion, region, gender, class, and nationalism. Ethical questions surrounding the establishment of the Japanese colonial empire in Asia, the Pacific War, the atomic bombings of Hiroshima and Nagasaki, the internment of Japanese-Americans in the United States, and the American Occupation of Japan. Instructor: Weisenfeld. One course. C-L: International Comparative Studies

181A. Japanese Print Culture. ALP, CCI, CZ

182. Japanese Architecture. ALP, CCI, CZ
A survey of major architectural traditions of Japan. Sites ranging from prehistoric tombs and dwellings to contemporary design work of architects such as Isozaki Arata and Ando Tadao. Focus on the development of various architectural typologies: Buddhist temples, Shinto shrines, tea ceremony structures, garden design, imperial and shogunal palaces, fortified castles, modern institutional structures, and private residences. Japanese architectural practices compared with other Asian and Euro-American building traditions. Aesthetic, structural, historical, social, and religious issues considered. Instructor: Weisenfeld. One course. C-L: International Comparative Studies

120H

184. History of Impressionism. ALP, CCI, CZ

187. Dada and Surrealism. ALP, CCI, CZ
The origins, aims, literature, and politics of the international movements of dada and surrealism, which flourished between the world wars, examined in the light of dada and surrealist theory, literature, and art. Instructor: Leighten. One course. C-L: Women's Studies

189A. Modern Architecture. ALP, CCI, CZ
Same as ARTHIST 189SAD, except instruction provided in lecture form. Instructor: Wharton. One course. C-L: International Comparative Studies 180B

189AD. Modern Architecture. ALP, CCI, CZ
The history of European and American architecture from the eighteenth-century Neo-Classicism through Gothic Revival, Art Nouveau, and Arts and Crafts to the early twentieth century Bauhaus. Labrouste, Richardson, early Wright, and LeCorbusier among the architects considered. Not open to students who have taken ARTHIST 189. Instructor: Wharton. One course. C-L: International Comparative Studies 180BD

189B. Postmodern Architecture. ALP, CCI, CZ
Same as Art History 189BD, except instruction provided in lecture format. Instructor: Wharton. One course.
189BD. Postmodern Architecture. ALP, CCI, CZ Background examination of the Bauhaus through Corporate International Style as a background to the Postmodern core of the course. Later Wright and LeCorbusier, Gehry, Graves, Eisenman, Disney Imaginers among the architects and designers considered. Political, ideological, aesthetic, and technical aspects of building investigated through primary texts. Not open to students who have taken ARTHIST 189. Instructor: Wharton. One course.

190. Berlin: Architecture, Art and the City, 1871-to the Present. ALP, CCI, CZ Development of urban Berlin from the Gründerzeit (the Boom Years) of the 1870s to the present: architecture of Imperial Berlin; the Weimar and Nazi periods; post World War II; reconstruction as a reunified city. The major architectural movements from late historicism to postmodernism. (Taught only in the Duke-in-Berlin Program.) Instructor: Neckenig. One course. C-L: International Comparative Studies

190B. Art and Architecture of Berlin, Fifteenth to the Twentieth Century. ALP, CCI, CZ Introduction to the visual arts of Germany from the fifteenth to the twentieth century through lectures conducted in Berlin's museums and cultural institutions. German Old Masters, German Romantic and Realist artists, Modernist art movements, such as Expressionism and New Objectivity, considered in relation to upheavals in modern German history. Taught in English in the Duke-in-Berlin summer program. Instructor: Staff. One course. C-L: German 196A

191A. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to qualified students in the junior year, by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

191B. Independent Study. Directed reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or report. Open to qualified students in the junior year, by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192A. Research Independent Study. R See Art History 191A. Open to qualified students in the junior year, by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192B. Independent Study. See Art History 191B. Open to qualified students in the junior year, by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

196B. English Art 1740-1850: Hogarth to the Pre-Raphaelites. ALP, CCI, CZ, R, W Painting and sculpture in Britain from Hogarth to the Pre-Raphaelites; developments in narrative painting, portraiture and history painting; funerary sculpture and the emergence of the public movement; the role of institutions and art collectors; writing on art from Hogarth and Reynolds to Hazlitt and Ruskin. Instructor: McWilliam. One course.

196C. French Art 1780-1850. ALP, CCI, CZ A thematic history of painting in France from Classicism to Realism; the impact of revolution and social change on visual art; the academy and artistic training and exhibition; romanticism and changing conceptions of creativity and artistic individuality; the crisis in history painting and the new appeal of landscape; critics and collectors. Instructor: McWilliam. One course.

198. Cubism and Culture. ALP, CCI, CZ, W Development of Cubism from its origins in Paris in 1907 to the movement's decline in the 1920's. Cubist aesthetics is contextualized in light of the cultural politics of the period. Topics may include tradition, primitivism and anti-colonialism, anarchism and politics, approaches to college, contemporary philosophy and science, and the role of gender in Cubist aesthetics. Instructor: Antliff or Leighten. One course.

199. History of Photography, 1839 to the Present. ALP, CCI, CZ Major artists and movements in the history of the photographic medium, including visual and critical
traditions inherited and manipulated by photographers, the ways photography participated in nineteenth- and twentieth-century art movements as well as documentation and social change, and critical photographic discourse throughout this period. Topics include the invention of photography, ‘Art' photography and documentary photography in the nineteenth century, pictorialism, 'straight' and purist photography, photography and modernist art movements (dada, surrealism, Bauhaus, Russian avant-garde), twentieth-century documentary, and photography of the 1950s, 1960s, 1970s, 1980s, and 1990s. Instructor: Leighten. One course. C-L: Visual Studies 101G, Documentary Studies, Film/Video/Digital

For Seniors and Graduates

201S. Topics in Greek Art. ALP, CCI, CZ, R Specific aspects of the art or architecture in the Greek world from the late Geometric to the Hellenistic periods. Subject varies from year to year. Consent of instructor required. Instructor: Staff. One course. C-L: Classical Studies 220S

210S. Topics in Renaissance Studies. ALP, CCI, CZ One course. C-L: see Italian 210S; also C-L: Medieval and Renaissance Studies 210S

227S. Roman Painting. ALP, CCI, CZ, R One course. C-L: see Classical Studies 236S

236S. Topics in Romanesque and Gothic Art and Architecture. ALP, CCI, CZ, R Analysis of an individual topic. Subject varies from year to year. Consent of instructor required. Instructor: Bruzelius. One course. C-L: Medieval and Renaissance Studies 237S

237S. Greek Painting. ALP, CCI, CZ, R One course. C-L: see Classical Studies 232S

238S. Greek Sculpture. ALP, CCI, CZ, R One course. C-L: see Classical Studies 231S

240S. Technology and New Media in the University. SS, STS One course. C-L: see Information Science and Information Studies 240S; also C-L: Visual Studies 250BS

241. History of Netherlandish Art and Visual Culture in a European Context. ALP, CCI, CZ, R A contextual study of visual culture in the Greater Netherlands and its underlying historical and socioeconomic assumptions from the late medieval to early modern period, through immediate contact with urban cultures, such as Amsterdam, Leiden, Utrecht, Brussels, Ghent, Bruges, and Antwerp. Includes daily visits to major museums, buildings, and sites; hands-on research in various collections; discussion sessions with leading scholars in the field; and a critical introduction to various research strategies. (Taught in the Netherlands.) Not open to students who have taken Art History 158-159. Course credit contingent upon completion of Art History 242. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 241, Visual Studies 210, International Comparative Studies


243S. Topics in Netherlandish and German Art. ALP, CCI, CZ, R Specific problems in northern Renaissance or baroque art such as the Antwerp workshops of the sixteenth century or a critical introduction to major artists such as Van Eyck, Bosch, Dürer, and Rubens. An analytical approach to their lives, methods, atelier procedures and followers; drawings and connoisseurship problems; cultural, literary, social, and economic context; documentary and scientific research strategies. Subject varies from year to year. Consent of instructor required. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 243S, International Comparative Studies

for valuation of imagery or what makes art as a commodity desirable or fashionable. Visual
taste formation, consumer behavior, and the role of art dealers as cross-cultural negotiants.
Consent of instructor required. Instructor: Van Miegroet. One course. C-L: Medieval and
Renaissance Studies 245S, Economics 244S, Visual Studies 252AS

247S. Topics in Italian Renaissance Art. ALP, CCI, CZ, R Topics in art and/or
architecture from c. 1300 to c. 1600. Subject varies from year to year. Consent of instructor
required. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 248S

250S. Critical Studies in New Media. ALP, R, SS, STS One course. C-L: see Information
Science and Information Studies 250S; also C-L: Literature 261S, Visual Studies 250AS,
Film/Video/Digital

255S. Museum Theory and Practice. ALP, R Museum theory and the operation of
museums, especially art museums, and how the gap between theory and practice is
negotiated in the real world setting. Issues involving collecting practices, exhibition
practices, and didactic techniques, as well as legal and ethical issues. Taught in the Nasher
Museum. Instructor: Rorschach. One course.

256S. Inventing the Museum: Collecting and Cultural Discourses of the Nineteenth
Century. ALP, CCI, CZ, R One course. C-L: see German 286S; also C-L: History 286AS,
Romance Studies 286S

265S. Topics in Nineteenth-Century Art. ALP, CCI, CZ, R Focus on a major artist,
movement, or trend in nineteenth-century art. Subject varies from year to year. Consent of
instructor required. Instructor: Antliff, Leighten, or McWilliam. One course.

272S. Topics in Chinese Art. ALP, CCI, CZ, R Problems and issues in a specific period
or genre of Chinese art. Specific focus varies from year to year. Instructor: Abe. One course.
C-L: International Comparative Studies

274S. Topics in Japanese Art. ALP, CCI, CZ, R Problems and issues in a specific period
or genre of Japanese art. Specific focus varies from year to year. Consent of instructor
required. Instructor: Weisenfeld. One course. C-L: International Comparative Studies

274S. Topics in Japanese Art. ALP, CCI, CZ, R Problems and issues in a specific period
or genre of Japanese art. Specific focus varies from year to year. Consent of instructor
required. Instructor: Weisenfeld. One course. C-L: International Comparative Studies

283S. Topics in Modern Art. ALP, CZ, R Selected themes in modern art before 1945,
with emphasis on major movements or masters. Subject varies from year to year. Consent of
instructor required. Instructor: Antliff, Leighten, or Stiles. One course. C-L: International
Comparative Studies

284AS. Caricature and Popular Journalism in England 1760-1850. ALP, CCI, CZ
Social and political caricature from the accession of George III to the early Victorian era.
Caricature and party politics; satires of fashionable society; reactions to the American War
of Independence, the French Revolution and the Napoleonic Wars. Caricature, radical
journalism and the reform movement; the emergence of comic journalism. Instructor:
McWilliam. One course.

285S. Information Archeology: Studies in the Nature of Information and Artifact in
the Digital Environment. SS, STS One course. C-L: see Information Science and
Information Studies 260S

288S. Special Topics. ALP Subjects, areas, or themes that embrace a range of disciplines
or art historical areas. Instructor: Staff. One course.

290S. Visual Culture and Animal Studies. ALP, CCI, CZ, R The visual culture construct-
ed around animals, including images of animals from prehistoric to contemporary
representations, the role of visualization in animal rights and survival, animals as human
totems and stuffed toys, portrayals of animal consciousness and debates about speciesism,
in the analysis of the cultural objectification and societal subjectification of animals.
Instructor: Stiles. One course.

291A. Research Independent Study. R Individual research in a field of special interest
under the supervision of a faculty member, the central goal of which is a substantive paper
or written report containing significant analysis and interpretation of a previously approved
291B. Independent Study. Directed reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or report. Open only to qualified students in the senior year. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

292A. Research Independent Study. See Art History 291A. Open only to qualified students in the senior year. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

292B. Independent Study. See Art History 291B. Open only to qualified students in the senior year. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

296S. Methodology of Art History. ALP, CZ, R, W Various theoretical perspectives that have shaped different disciplinary perspectives and practices in art history. Introduction to particular types of methodologies (i.e. Marxism, feminism, race and gender, psychoanalysis, post-colonial theory, and deconstruction) as fields of inquiry through which the study of the visual arts and culture have been practiced. Historiography of the last two decades in art history; selected contemporary debates. Instructor: Staff. One course.

297S. Topics in Art since 1945. ALP, CZ, R Historical and critical principles applied to present-day artists and/or movements in all media since World War II. Consent of instructor required. Instructor: Stiles. One course. C-L: International Comparative Studies

VISUAL ARTS (ARTSVIS)

Studio art courses offer directed experiences in the practice of the visual arts, enhancing the understanding of art both within the history of culture and as an individual human achievement. Department offerings emphasize the analysis and articulation of visual concepts and processes as they relate to a broader education in the humanities and sciences.

A major or concentration in studio art can provide the foundation for further study in various areas of the visual arts. It may prepare the student for further training as an artist, teacher, or architect, as well as in related fields such as advertising or design. Lower-level courses emphasize the fundamentals of drawing, color, and form; upper-level courses encourage the student to develop a more individual conceptual approach and style, within the context of historical precedents and traditions.


54. Introduction to Visual Practice. ALP Basic principles and methods of visual practice: 2DD and 3DD composition, drawing, color theory, photographic and architectural principles, as well as digital and time-based media like film, video, and performance. Visuality in everyday life and its impact on other fields of knowledge. Includes methods such as mapping, virtual environments, graph theory, and vernacular visual practices. Intended primarily for first and second year students. Prerequisite for all intermediate and advanced Visual Arts and Visual Practice classes. Instructor: Lasch. One course.


81FCS. Topics in Visual Arts. ALP Subjects, areas, or themes that embrace art and visual culture. Open only to students in the Focus Program. Instructor: Staff. One course.

87FCS. Visual Representation and Visual Culture. ALP, SS, STS One course. C-L: see Information Science and Information Studies 87FCS

100. Drawing. ALP Drawing as integrative tool where ideas and processes explored and expanded through a variety of media. Still life, figure, landscape, architecture. Representation, abstraction, and working from imagination. Through problem solving within a range of projects, development of a visual language, and drawing skills to be applied to conceptual,
visual, and technical disciplines. Consent of instructor required. Instructor: Staff. One course.

101. Book Illustration. ALP Studio course examining all aspects of bookmaking, including theories of bookmaking, designing and planning, typography, computer design, illustration, and binding. Prerequisites: Visual Arts 100 and consent of instructor. Instructor: Shatzman. One course. C-L: Visual Studies 102A

102. Figure Drawing. ALP The human figure through different artistic media and from different visual perspectives. Emphasis on drawing and design skills and an anatomical knowledge of the human form. A significant body of drawings is developed in this class. Prerequisites: Visual Arts 54, 100 and consent of instructor based on portfolio. Instructor: Staff. One course.

103. Introduction to Architectural Design. ALP Introduction to architectural design: space making with emphasis on process, abstraction, and modes of representation. Drawing conventions, orthographic projection, model building, rendering, digital technologies as forms of visual inquiry. Tectonics, space, scale, and material as ensemble parts of project presentations to represent ideas as well as artifacts. Final projects on building program and architectural issues: threshold, view, entry. Instructor consent required. Instructor: Jones. One course.

104. Intermediate Architectural Design. ALP Architectural design as an "impure" plastic art interconnected with physical, economic, and cultural forces. Development of architectural fundamentals; questioning typologies and rethinking architecture as site of cultural production. Projects range in scale from room to urban intervention to discrete structure. Exploration of graphic means to imagine and describe space and use it analytically to interpret/resolve problems. Includes case studies and site visits. Prerequisite: Visual Arts 103. Instructor: Jones. One course.

105. Intermediate Drawing. ALP, R Allows students to explore their artistic interests and biases through a series of self-directed projects. Both the directness and the flexibility of the medium of drawing are investigated. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Staff. One course.


110. Sculpture. ALP Sculptural principles, processes, and issues introduced through lectures, readings, studio assignments, individual projects, and field trips. Consent of instructor required. Instructor: Noland. One course.

111. Intermediate Sculpture. ALP Studio practice in sculpture at the intermediate level. Group and individual discussion and critique. Prerequisite: Visual Arts 110 and consent of instructor. Instructor: Noland. One course.

112S. A Digital Approach to Documentary Photography: Capturing Transience. ALP One course. C-L: see Documentary Studies 113S; also C-L: Visual Studies 103JS, Information Science and Information Studies

113S. Photographing the Lives of Women and Girls, ALP One course. C-L: see Documentary Studies 119S; also C-L: Women's Studies 175S, Visual Studies 103ES

114S. Large Format Photography. ALP One course. C-L: see Documentary Studies 114S; also C-L: Visual Studies 103KS

115. Introduction to Photography. ALP One course. C-L: see Documentary Studies 115; also C-L: Visual Studies 103L

116S. Photography. ALP, CZ An emphasis on how to see with the camera and ways of thinking about photographs. Class assignments accompanied by historical and theoretical readings, lectures, class discussions, and field trips. Final projects are a self-portrait series...
and an individual documentary essay. Prerequisites: camera and consent of instructor. Instructor: Noland. One course. C-L: Documentary Studies, Film/Video/Digital

117. Documentary Photography and the Southern Culture Landscape. ALP, CCI One course. C-L: see Documentary Studies 117; also C-L: Visual Studies 103M

118S. American Communities: A Photographic Approach. ALP, CCI, SS One course. C-L: see Documentary Studies 176S; also C-L: Public Policy Studies 176S, Visual Studies 103XS, Policy Journalism and Media, Film/Video/Digital

119S. Advanced Documentary Photography. ALP, SS One course. C-L: see Documentary Studies 177S; also C-L: Public Policy Studies 177S, Visual Studies 103YS, Policy Journalism and Media, Film/Video/Digital

120. Painting. ALP Studio practice in painting with individual and group criticism and discussion of important historic or contemporary ideas. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Staff. One course.

122AS. Alternative Photographic Processes. ALP One course. C-L: see Documentary Studies 118S; also C-L: Visual Studies 103NS


130. Printmaking: Silkscreen. ALP, R The silkscreen medium and its stencil-making processes including paper stencils, blockouts crayon, and photographic methods. Students develop a significant body of prints using these techniques. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Shatzman. One course.

131. Printmaking: Lithography. ALP, R Introduction to stone lithography and its drawing and printing methods. Includes both black and white and color printing. The methods and history of lithographic printing. Projects emphasize the development of visual images through this medium. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Shatzman. One course.

132. Printmaking: Relief and Monotype. ALP, R Relief methods of woodcut and linoleum block printing and monotype techniques. Concentration on both the technical and historical aspects of the media and its expressive potentials. Students develop a significant body of prints using these techniques. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Shatzman. One course.

133. Printmaking: Intaglio. ALP, R Directed problems in the intaglio medium including etching, aquatint, drypoint, black and white, and color printing methods. Assigned projects emphasize conceptual issues supported by the medium. Students develop a significant body of prints through use of this medium. Prerequisites: Visual Arts 54, 100 and consent of instructor. Instructor: Shatzman. One course.

138S. Adapting Literature -- Producing Film. ALP One course. C-L: see Film/Video/Digital 133S; also C-L: Documentary Studies 133S, Information Science and Information Studies

144S. The Photographic Portrait: The Practice of Representation. ALP One course. C-L: see Documentary Studies 145S; also C-L: Visual Studies 103QS

146S. Experimental Filmmaking. ALP One course. C-L: see Film/Video/Digital 142S; also C-L: English 186ES

147S. Collaborative Art: Practice and Theory of Working Within a Community. ALP One course. C-L: see Documentary Studies 147S; also C-L: Visual Studies 103TS

150S. Intermediate Narrative Production. ALP One course. C-L: see Film/Video/Digital 150S; also C-L: English 186FS
158S. Small Town USA: Local Collaborations. ALP, CCI, R One course. C-L: see Documentary Studies 158S; also C-L: Public Policy Studies 158S, Visual Studies 103WS
161S. Costume Design. ALP, R One course. C-L: see Theater Studies 161S
162S. Scene Design. ALP, R One course. C-L: see Theater Studies 162S
163S. Lighting Design. ALP, R One course. C-L: see Theater Studies 160S
165S. Film Animation Production. ALP One course. C-L: Film/Video/Digital 135S, Visual Studies 117IS, Information Science and Information Studies
166S. Intermediate Animation. ALP One course. C-L: see Film/Video/Digital 151S
169S. Special Topics in Visual Arts. ALP Subject varies from year to year. Instructor: Staff. One course.
170. Topics in Visual Arts. ALP Subject varies from year to year. Consent of instructor required. Instructor: Staff. One course.
178S. Color Photography: Fieldwork and Digital Color. ALP One course. C-L: see Documentary Studies 178S; also C-L: Visual Studies 103ZS
180S. The Photographic Essay: Narratives Through Pictures. ALP One course. C-L: see Documentary Studies 180S
194S. Multimedia Documentary: Editing, Production, and Publication. ALP One course. C-L: see Documentary Studies 194S; also C-L: Visual Studies 131AS

For Seniors and Graduates
200S. Senior Capstone in Visual Practice. ALP Capstone seminar focusing on advanced visual practice and theory, including the completion of a body of work and participation in a culminating exhibition. Consent of instructor required. Instructor: Staff. One course.
208S. Poverty and the Visual. ALP, CCI, CZ Relationship between art, visual culture, and poverty from the 1950s to the present across cultures. Readings, research, visual analyses, and production assignments based on a broader understanding of poverty as a philosophical, economic, social, and cultural concept. Instructor: Lasch. One course.
217. Independent Study. Individual directed study in a field of visual practice on a previously approved topic, under the supervision of a regular-rank faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instruct. One course.
218. Independent Study. R Individual directed study in a field of visual practice on a previously approved topic, under the supervision of a regular-rank faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.
269S. Special Topics in Visual Arts. ALP Special Topics in Visual Arts. Subject varies from year to year. One course. Instructor: Staff. One course.

VISUAL STUDIES (VISUALST)
Visual Studies concerns all aspects of the production, circulation, and reception of visual images in culture, science, and society. It emerged in the late 1970s during the same period as Cultural Studies, as a field of inquiry throughout the humanities. Studies in visual culture engage students in the analysis of rhetoric and semiotics of images, providing access to how visual meaning is socially, politically, and culturally constructed and received. Visual Studies enables students to interpret the representations that shape the visual constructs of a particular society, to consider how systems of visual codes differ from culture to culture, and to think through how the symbolic constructions of life organize how one sees, understands, and participates in natural and social environments. Most importantly,
establishing a clear connection between the theory and the practice of visuality is the foundation of Visual Studies.

50. Introduction to Astronomy. NS One course. C-L: see Physics 55

88FCS. Berlin in the Twentieth Century. ALP, CCI, CZ, EI One course. C-L: see German 88FCS

100D. Introduction To Visual Culture. ALP, CCI, CZ Survey of visual culture, from issues of production, circulation and reception to how visual media have historically exerted power, elicited desire, and constructed social experience. Topics include: how photography, television, film, video, Internet, advertising, comics, and other imagery code vision and inscribe race, gender, sexuality and class differences, and dominate nature and animals; how the gaze links cultural performativity, from the coliseum to shopping malls and museums to sports events; and how the rhetoric and semiotics of representation provide access to ways in which visual meaning is socially, politically, and culturally produced and obtained. (Team-taught.) Not open to students who previously took this course as Art History 108D. Instructor: Staff. One course. C-L: Film/Video/Digital

101A. Representing Women in the Classical World. ALP, CCI, CZ The lives of women in the Classical world viewed through the visual culture of Classical art. Through images of women in statues, reliefs, coins, and painting, the course explores the role of visual representation in communicating complex social and political messages. Issues such as the construction of gender, the expression of power and status, the preservation of social hierarchies, the protection of normative values, and the manipulation and control of sexuality are considered. Instructor: Dillon. One course. C-L: Art History 103, Classical Studies 103

101B. Visualizing Cultural Dissent in Modernism, 1880-1945. ALP, CCI, CZ Interrelations of modernism and politics in a period of rapid social and technological change, rise of mass social movements, and political reaction on left and right. Development of new media in the form of prints and photography reflecting these changes and a variety of social movements and political positions by artists exploring a range of subjects, media, and exhibition venues from large-scale paintings in the annual state-sponsored salons to political satire in the press. Instructor: Leighten. One course. C-L: Art History 121

101C. French Art and Visual Culture in the Early Modern Period. ALP, CCI, CZ, R Students proficient in French will be encouraged to do some of the reading in French. C-L: Art History 156. Instructor: Van Miegroet. One course. C-L: Art History 156, Medieval and Renaissance Studies 157, International Comparative Studies 180A


101G. History of Photography, 1839 to the Present. ALP, CCI, CZ Major artists and movements in the history of the photographic medium, including visual and critical traditions inherited and manipulated by photographers, the ways photography participated in nineteenth- and twentieth-century art movements as well as documentation and social change, and critical photographic discourse throughout this period. Topics include the invention of photography, 'Art' photography and documentary photography in the nineteenth century, pictorialism, 'straight' and purist photography, photography and modernist art movements (dada, surrealism, Bauhaus, Russian avant-garde), twentieth-century documentary, and photography of the 1950s, 1960s, 1970s, 1980s, and 1990s. Instructor: Leighten. One course. C-L: Art History 199, Documentary Studies, Film and Video

102A. Book Illustration. ALP Studio course examining all aspects of bookmaking, including theories of bookmaking, designing and planning, typography, computer design,
illustration, and binding. Prerequisites: Visual Arts 100 and consent of instructor. Instructor: Shatzman. One course. C-L: Visual Arts 101

103A. Traditions in Documentary Studies. ALP, CCI One course. C-L: see Documentary Studies 101

103BS. Medicine and the Vision of Documentary Photography. ALP One course. C-L: see Documentary Studies 104S; also C-L: Public Policy Studies 104S

103CS. The Documentary Experience: A Video Approach. ALP, R, SS One course. C-L: see Documentary Studies 105S; also C-L: Cultural Anthropology 134S, Film/Video/Digital 139S, History 150BS, Political Science 156S, Public Policy Studies 105S

103ES. Photographing the Lives of Women and Girls. ALP One course. C-L: see Documentary Studies 119S; also C-L: Women's Studies 175S, Visual Arts 113S

103FS. Children's Self Expression: Literacy Through Photography. EI, SS One course. C-L: see Documentary Studies 144S; also C-L: Education 144S

103GS. Documenting Religion. CCI, CZ One course. C-L: see Documentary Studies 168S; also C-L: Religion 161QS, Cultural Anthropology 162AS

103IS. Children and the Experience of Illness. SS One course. C-L: see Documentary Studies 100S; also C-L: Public Policy Studies 100S

103JS. A Digital Approach to Documentary Photography: Capturing Transience. ALP One course. C-L: see Documentary Studies 113S; also C-L: Visual Arts 112S, Information Science and Information Studies

103KS. Large Format Photography. ALP One course. C-L: see Documentary Studies 114S; also C-L: Visual Arts 114S

103L. Introduction to Photography. ALP One course. C-L: see Documentary Studies 115; also C-L: Visual Arts 115

103M. Documentary Photography and the Southern Culture Landscape. ALP, CCI One course. C-L: see Documentary Studies 117; also C-L: Visual Arts 117

103NS. Alternative Photographic Processes. ALP One course. C-L: see Documentary Studies 118S; also C-L: Visual Arts 122AS

103PS. Visual Research and the American Dream. ALP, R, SS One course. C-L: see Documentary Studies 122S; also C-L: Sociology 128S

103QS. The Photographic Portrait: The Practice of Representation. ALP One course. C-L: see Documentary Studies 145S; also C-L: Visual Arts 144S

103RS. Sociology through Photography. ALP, SS One course. C-L: see Documentary Studies 146S; also C-L: Sociology 152S

103TS. Collaborative Art: Practice and Theory of Working Within a Community. ALP One course. C-L: see Documentary Studies 147S; also C-L: Visual Arts 147S

103US. Planning the Documentary Film: From Concept to Treatment. ALP, R One course. C-L: see Documentary Studies 148S; also C-L: Film/Video/Digital 140S, Information Science and Information Studies

103VS. Intermediate Documentary Filmmaking. One course. C-L: see Film/Video/Digital 152S; also C-L: Documentary Studies 150S, Public Policy Studies 182S, Information Science and Information Studies

103WS. Small Town USA: Local Collaborations. ALP, CCI, R One course. C-L: see Documentary Studies 158S; also C-L: Visual Arts 158S, Public Policy Studies 158S

103XS. American Communities: A Photographic Approach. ALP, CCI, SS One course. C-L: see Documentary Studies 176S; also C-L: Visual Arts 118S, Public Policy Studies 176S, Film/Video/Digital, Policy Journalism and Media Studies
103YS. Advanced Documentary Photography. ALP, SS One course. C-L: see Documentary Studies 177S; also C-L: Visual Arts 119S, Public Policy Studies 177S, Film/Video/Digital, Policy Journalism and Media Studies

103ZS. Color Photography: Fieldwork and Digital Color. ALP One course. C-L: see Documentary Studies 178S; also C-L: Visual Arts 178S

104A. Film and the African Diaspora. ALP, CCI, SS One course. C-L: see African and African American Studies 101; also C-L: Film and Video

104B. Culture and Politics in Africa. CCI, CZ, SS One course. C-L: see African and African American Studies 122; also C-L: Cultural Anthropology 122, International Comparative Studies

104C. Black Popular Culture. CCI, CZ One course. C-L: see African and African American Studies 132

105B. Indian Cinema. ALP, CCI, CZ, R One course. C-L: see Asian and African Languages and Literature 170; also C-L: Literature 112E, Film/Video/Digital 111D

105C. Japanese Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 171; also C-L: Literature 112H, Film/Video/Digital 111F

105E. Melodrama East and West. ALP, CCI One course. C-L: see Asian and African Languages and Literature 179; also C-L: Women's Studies 179, Literature 151J, International Comparative Studies 170A

105F. Korean Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 175; also C-L: Literature 112G, Film/Video/Digital 111G

105G. Modern Chinese Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 188; also C-L: Literature 112J, Film/Video/Digital 111A

108A. Drama of Greece and Rome. ALP, CCI One course. C-L: see Classical Studies 106; also C-L: Theater Studies 117

109A. Computer Graphics. QS One course. C-L: see Computer Science 124

110A. Anthropology and Film. SS One course. C-L: see Cultural Anthropology 104; also C-L: International Comparative Studies 101C, Documentary Studies, Film/Video/Digital

110B. Fantasy, Mass Media, and Popular Culture. CCI, R, SS One course. C-L: see Cultural Anthropology 108; also C-L: International Comparative Studies 103E, Documentary Studies, Policy Journalism and Media Studies, Study of Sexualities

110C. Anthropology and the Motion Picture. ALP, CCI, CZ One course. C-L: see Cultural Anthropology 109

110E. Advertising and Society: Global Perspective. CCI, SS One course. C-L: see Cultural Anthropology 110; also C-L: English 120, Sociology 160, Linguistics 120, Canadian Studies, International Comparative Studies, Policy Journalism and Media Studies, Film/Video/Digital, Women's Studies, Markets and Management Studies

110FS. Advertising and Masculinity. CCI, SS One course. C-L: see Cultural Anthropology 116S; also C-L: Film and Video, Markets and Management Studies, Policy Journalism and Media Studies, Women's Studies

110G. Global Culture. CCI, SS One course. C-L: see Cultural Anthropology 117; also C-L: International Comparative Studies

110H. Representing the Middle East. CCI, CZ, SS One course. C-L: see Cultural Anthropology 132; also C-L: Asian and African Languages and Literature 132, History 131B, Turkish 132, International Comparative Studies 141B, Islamic Studies

111AS. The Surface of the Earth. NS One course. C-L: see Earth and Ocean Sciences 103S

112A. Financial Markets and Investment. QS, SS One course. C-L: see Economics 157

113A. Opto-Electronic Design Projects. One course. C-L: see Electrical and Computer Engineering 135
113B. Digital Image and Multidimensional Processing. One course. C-L: see Electrical and Computer Engineering 189; also C-L: Information Science and Information Studies

114A. Aesthetics, Design, and Culture. One course. C-L: see Engineering 175

115A. Studies in Film History. ALP One course. C-L: see English 185; also C-L: Theater Studies 172, Literature 116, Film/Video/Digital 105

116A. Ecology. NS, R One course. C-L: see Environment 110L; also C-L: Biology 110L

116B. Fundamentals of GIS and Geospatial Analysis. NS, QS One course. C-L: see Environment 159; also C-L: Earth and Ocean Sciences 159

117AS. Introduction to Production. ALP, STS One course. C-L: see Film/Video/Digital 130S; also C-L: Theater Studies 173S, English 183S, Information Science and Information Studies

117C. Introduction to Documentary Film. ALP, CCI One course. C-L: see Film/Video/Digital 102; also C-L: Art History 122, Literature 120E, Documentary Studies 107

117F. Film Genres. ALP One course. C-L: see Film/Video/Digital 106; also C-L: Literature 120F, English 186B, Art History 136

117G. American Film Comedy. ALP One course. C-L: see Film/Video/Digital 107; also C-L: English 186C, Literature 120G

117H. Conflict, Conflict Resolution, and Film. ALP, CCI, SS One course. C-L: see Film/Video/Digital 108; also C-L: English 186A, Political Science 156, Literature 120C, Public Policy Studies 172

117IS. Film Animation Production. ALP One course. C-L: Visual Arts 165S, Film/Video/Digital 135S, Information Science and Information Studies

117JS. Motion Graphics in Film and Video. ALP, STS One course. C-L: see Film/Video/Digital 136S

117KS. Documentary Film/Video Theory and Practice. ALP One course. C-L: Cultural Anthropology 131S, English 101CS, Film/Video/Digital 138S, Documentary Studies

117LS. Editing the TV Documentary: From Creativity to Collaboration to Negotiation. ALP One course. C-L: see Film/Video/Digital 141S; also C-L: Documentary Studies 141S

118AS. Utopias and Nightmares: Science, Technology, and German Culture. ALP, FL, STS One course. C-L: see German 136S; also C-L: Information Science and Information Studies

118BS. German Film. ALP, FL One course. C-L: see German 141S; also C-L: Film/Video/Digital 111C

118C. Terror and German Cinema. ALP, CCI, CZ One course. C-L: see German 189; also C-L: Literature 112L

118ES. Freud's Vienna: Experiments in Modernity Around 1900. ALP, CCI, CZ, FL One course. C-L: see German 142S

119A. Weimar and Nazi Germany. CZ, R One course. C-L: see History 135B; also C-L: International Comparative Studies

120A. Perspectives on Information Science and Information Studies. CZ, STS One course. C-L: see Information Science and Information Studies 100; also C-L: Art History 100

121A. Introduction to Film. ALP One course. C-L: see Literature 110; also C-L: Theater Studies 171, English 101A, Film/Video/Digital 101, Policy Journalism and Media Studies

121B. Gender and Sexuality in Japanese Anime Culture. ALP, CCI One course. C-L: see Literature 112F

121CS. Sexualities in Film and Video. ALP One course. C-L: see Literature 115S; also C-L: English 124S, Film/Video/Digital 115S, Study of Sexualities
121E. Introduction to Cultural Studies. ALP One course. C-L: see Literature 100; also C-L: English 101B, Film/Video/Digital
121F. International Popular Culture. ALP, CCI One course. C-L: see Literature 141; also C-L: Comparative Studies, Film and Video, Latin American Studies
121G. Film Theory. ALP, STS One course. C-L: see Literature 114; also C-L: Film/Video/Digital 104, Women's Studies
122A. Aesthetics: The Philosophy of Art. ALP, CZ One course. C-L: see Philosophy 102
122B. Philosophy of Mind. CZ, R One course. C-L: see Philosophy 112; also C-L: Linguistics 108, Information Science and Information Studies
123A. Modern Optics I. NS One course. C-L: see Physics 185; also C-L: Electrical and Computer Engineering 122
125A. Media and National Security. SS, STS One course. C-L: see Public Policy Studies 117; also C-L: Policy Journalism and Media Studies
125BS. Television Journalism. SS One course. C-L: see Public Policy Studies 118S; also C-L: Information Science and Information Studies, Policy Journalism and Media Studies
125CS. Magazine Journalism. SS, W One course. C-L: see Public Policy Studies 119S; also C-L: Policy Journalism and Media Studies
125ES. News Writing and Reporting. R, SS, W One course. C-L: see Public Policy Studies 120S; also C-L: Film and Video, Policy Journalism and Media Studies
126A. Italian Cinema. ALP, CCI One course. C-L: see Italian 132; also C-L: Literature 112K, Film/Video/Digital 111E, Theater Studies 172A
126BS. Brazilian Popular Culture. ALP, CCI, CZ, FL One course. C-L: see Portuguese 140S; also C-L: Cultural Anthropology 140AS, African and African American Studies 140S
126E. French Cinema. ALP, CCI, FL One course. C-L: see French 155; also C-L: International Comparative Studies 181E, Film/Video/Digital 111B
126F. World War II and French Film. CCI, CZ, EI, FL One course. C-L: see French 156; also C-L: Film/Video/Digital 117, History 153C, Film/Video/Digital
126G. Comics and Culture: Images of Modern France in the Making. ALP, CCI, FL One course. C-L: see French 157
126H. Yesterday's Classics/Today's Movies. ALP, CCI, FL One course. C-L: see French 158
126I. Contemporary Culture Wars. CCI, CZ, EI, FL One course. C-L: see French 159
126JS. French Films/American Masks. ALP, CCI, FL One course. C-L: see French 165S
126KS. 20th Century Latin American Photography. CCI, CZ, FL One course. C-L: see Spanish 177S; also C-L: Art History 177S, International Comparative Studies 132BS, Latin American Studies
127AS. Russian Language and Culture through Film. CCI, FL, SS One course. C-L: see Russian 124S
127B. Eastern Europe in Transition: Markets, Media, and the Mafia. CCI, CZ, SS One course. C-L: see Russian 125; also C-L: Sociology 121, International Comparative Studies 161B, Policy Journalism and Media Studies
127CS. Russian Language and Culture through Film II. ALP, CCI, FL, SS One course. C-L: see Russian 126S
127E. Contemporary Russian Media. CCI, EI, FL, SS One course. C-L: see Russian 135A; also C-L: International Comparative Studies, Film and Video
127F. Contemporary Russian Culture: Detective Novels and Film. ALP, CCI, CZ, FL One course. C-L: see Russian 143
127G. Art and Dissidence: The Films of Tarkovsky, Kubrick, Kurosawa, and Lynch. ALP, CCI, CZ One course. C-L: see Russian 163; also C-L: English 118, Film/Video/Digital

128B. American Drama and Film: 1945-1960. ALP One course. C-L: see Theater Studies 102; also C-L: English 162B

128C. American Drama and Film Since 1960. ALP One course. C-L: see Theater Studies 103; also C-L: English 162C

128F. Criminality of Art. ALP One course. C-L: see Theater Studies 176; also C-L: English 134B, Literature 131C

128GS. Masculine Anxiety and Male-Male Desire in Drama and Film Since 1950. ALP, CCI One course. C-L: see Theater Studies 179S; also C-L: English 175S, Literature 125AS

129A. Gender and Popular Culture. CCI, SS One course. C-L: see Women's Studies 162

129AS. Gender and Popular Culture. CCI, SS One course. C-L: see Women's Studies 162S

131AS. Multimedia Documentary: Editing, Production, and Publication. ALP One course. C-L: see Documentary Studies 194S; also C-L: Visual Arts 194S

150. Roman Spectacle. ALP, CCI, CZ, EI Gladiatorial games, wild beast hunts, elaborately-staged executions of condemned criminals, and chariot racing as some of the most popular forms of public entertainment in the Roman world. The ritual of these entertainments and spectacles, the circumstances of and occasions for their performance, and the form and elaboration of the venues—the amphitheater, the circus, the theater, and the stadium—in which they took place. Visual and literary representations of these spectacles. Not open to students who have previously taken this course as Art History 104. Instructor: Dillon. One course. C-L: Classical Studies 140

154. The Art of Medieval Southern Italy. ALP, CCI, CZ, R The art and architecture of southern Italy from the ninth through the fourteenth centuries. The wide range of cultural influences and mixtures of populations that characterized the Kingdom of Sicily and the impact of these rich and diverse importations on the art and architecture of the southern part of the peninsula. Special importance placed on the Islamic contribution to Italian art and its development under the Norman kings of Sicily. Not open to students who have previously taken this course as Art History 112. Instructor: Bruzelius. One course. C-L: Medieval and Renaissance Studies 113

157. Netherlandish Art and Visual Culture in the Seventeenth and Eighteenth Centuries. ALP, CCI, CZ, R A contextual study of northern Netherlands art, seen through the major Dutch cities and towns where painters, such as Frans Hals and Johannes Vermeer, were at work. Rembrandt and his school; Dutch art in its historical, societal, moral, and psychological context. Not open to students who have previously taken this course as Art History 153. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 152B, International Comparative Studies

158. History of Netherlandish Art in a European Context. ALP, CCI, CZ See Art History 241. (Taught in the Netherlands.) Not open to students who have taken 241-242. Course credit contingent upon successful completion of Art History 158. Not open to students who have previously taken this course as Art History 158. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 158, International Comparative Studies

159. History of Netherlandish Art in a European Context. ALP, CCI, CZ See Art History 242. (Taught in the Netherlands.) Not open to students who have taken 241-242. Second half of Art History 158-159; required for credit for 158. Not open to students who have previously taken this course at Art History 159. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 159, International Comparative Studies

160. Paris: A City and its Culture 1850 - 1930. ALP, CCI, CZ The development of Paris, from the major remodeling initiated under the Second Empire to the advent of modern style
in the interwar years, focusing on the changes in architecture and planning which transformed the French capital into a model of urban modernity. The city as a physical environment that has to be understood in terms of varied populations, transport systems, economic activities, and cultural representations. The role played by visual arts in shaping the city, recording its appearance and interpreting its meanings, together with Paris's role as an environment favoring cultural production and exchange. Not open to students who have previously taken this course as Art History 196A. Instructor: McWilliam. One course. C-L: International Comparative Studies 180C

162. Fascism and Visual Culture: Art, Power, Spectacle. ALP, CCI, CZ, EI Pre-1945 visual culture of Fascist Italy, Nazi Germany, Franco Spain, and various fascist movements throughout Europe. Focus on a variety of media (e.g., town planning, painting, sculpture, film, photography, architecture) and topics including gender, aestheticized violence; theories of classicism in Italy and Germany; Italian Futurism; anti-Semitism; Mussolini's transformation of Rome; and fascism as a form of "secular religion." Not open to students who have previously taken this course as Art History 183. Instructor: Antliff. One course.

166. Cultural History of Graphic Reproduction. ALP, CCI, CZ Survey of the modern image-based print culture in its technological advancements and social impact, including case studies of key moments and exemplary aesthetic expressions in the history of image reproduction on paper. Topics include early woodcut illustrations; subsequent printmaking projects; the carte-de-visite; European fin-de-siècle popularity of poster art and Japanese woodcuts; twentieth-century photography and printmaking collectives in the Americas; and the photogravure's role in the rise of the pictorial magazine. Not open to students who have previously taken this course as Art History 119. Instructor: Powell. One course.

172. History of the Museum. ALP, CCI, CZ, R The purposes and functions of the museum as a Western institution from precursors to the present. The architecture, display practices, and pedagogical goals of art, natural history, and other museums. The incorporation of non-Western visual culture and the globalization of the museum in the contexts of colonialism and modernism. Comparative study of the treatment of Western and non-Western objects. Critical theory, aesthetics, and museum practices in terms of visual studies. Field research in museums required. Not open to students who have previously taken this course as Art History 172A. Instructor: Abe. One course. C-L: Literature 132C, International Comparative Studies

173. Chinese Visual Culture. ALP, CCI, CZ, R Introduction to visual culture produced in China from the Neolithic period to the present including archaeological discoveries of burials, tombs, temples, and palaces, the literati arts of calligraphy and painting, architecture, popular visual production, film, and fashion with attention to the role of overseas Chinese in recent history. Not open to students who have previously taken this course as Art History 164. Instructor: Abe. One course. C-L: International Comparative Studies

175. Contemporary Japanese Visual Culture. ALP, CCI, CZ, W Introduction to the art and visual culture of contemporary Japan concentrating on the postwar period, particularly 1980s to present. Performance art, installations, graphic and industrial design, photography, fashion, animation, and comics (manga). The transnational spread of popular culture within the Asia-Pacific region and the cross-cultural exchanges between East and West; the relationship between high art and popular culture; the impact of economic globalization and consumerism on visual culture. Not open to students who have previously taken this course as Art History 181B. Instructor: Weisenfeld. One course.

180. Feminism and Visual Culture. ALP, CCI, CZ Feminist aesthetic and theoretical discourses from the end of the nineteenth century to the present internationally. Feminist aesthetic differences in generation, place, race, class, and ethnicity. Focus on how these differences shape the form, content, and behavior of feminist art, and contributed to modernism and postmodernism. Ethical questions regarding patriarchal institutions and aesthetic practices. How feminist art provokes change in cultural systems and social
relations, and how women artists have negotiated ethical and political clashes of values. Not open to students who have previously taken this course as Art History 186. Instructor: Stiles. One course. C-L: Literature 133A, Women's Studies 175

181. Global Performance from late 1950s to the Present. ALP, CCI, CZ, EI Performance Art History/Theory explores cultural experimentation, theoretical strategies, and ideological aims of performance art internationally; examines interchanges between artists' theories of performance, stylistic development, and impact in the context of cultural criticism and art history; traces interdisciplinary genealogies of performance globally; thinks about the body as a vehicle for aesthetic expression, communication, and information in its critique of social and political conditions; studies performance and gender, sexuality, race, and class; asks how performance alters the semiotics of visual culture and contributes to a paradigm shift from modernism to postmodernism. Not open to students who have previously taken this course as Art History 175. Instructor: Stiles. One course. C-L: English 172C, Information Science and Information Studies 175, Literature 133C, Theater Studies 175A, Women's Studies 176

183. Cultural History of the Televisual. ALP, CZ, STS Critical history of the "televisual" in the American visual culture mediascape, broadcast television, cable television, and contemporary convergences with new media technologies, emphasizing social conceptions of television, and their influence on how the medium has emerged as a cultural, technological, and visual apparatus; consideration of the economic and social forces unfolding in the context of the televisual, examining the social forces shaping the development of television from its inception in the 1940s to the present-day. Instructor: Staff. One course.

184S. Visual Cultures of Medicine. ALP, STS Exploration of the visual culture(s) of medicine. The changing role of diagnostic visuality and medical imaging from various philosophical and historical perspectives. The connections between medical ways of seeing and other modes of visuality, photography, cinema, television, computer graphics. The circulation of medical images and images of medicine in popular culture as well as in professional medical cultures. Not open to students who have previously taken this course as Art History 179S. Instructor: Olson. One course. C-L: Information Science and Information Studies 179S, Cultural Anthropology 179S

190. Special Topics in Visual Studies. ALP Subjects, areas, or themes that embrace a range of disciplines that relate to visual studies. Instructor: Staff. One course.

191. Digital Imaging. ALP Photoshop and Illustrator used to introduce single and serial images for print and web output. Consent of instructor required. Not open to students who have previously taken this course as ARTSVIS 106. Instructor: Staff. One course. C-L: Documentary Studies, Information Science and Information Studies

192. Virtual Form and Space. Studio course that explores various applications of virtual environments and specific 3D modeling techniques. Introduction to animation principles. Screenings, discussions, and lab. Not open to students who have taken this course as FVD 118. Prerequisites: Visual Arts 100 and consent of instructor required. Not open to students who have previously taken this course as ARTSVIS 108. Instructor: Staff. One course. C-L: Information Science and Information Studies 108, Film/Video/Digital 137

193. Visual Culture and Photography. ALP How photographers create, document, and reflect visual culture, beginning with James Agee's notion of a photographer "ordering the façade" to interpretations, reflections, and comments on visual expressions in local landscapes and fieldwork. Not open to students who have previously taken this course as ARTSVIS 123. Instructor: Rankin. One course. C-L: Information Science and Information Studies 123, Film/Video/Digital 137

194. Graphic Design: Theory and Practice. ALP Design history and theory. Lectures and projects focused on direct interaction with digitized elements of historically significant designs. Design elements and principles. Comparison of the language and tools of old and new media. Analysis of visual materials, discovering conceptual and stylistic connections, including Illustrator and Photoshop. Not open to students who have taken this course as
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ARTSVIS 55 or ARTSVIS 127. Consent of instructor required. Prerequisites: Visual Arts 54. Instructor: Staff. One course.

195. Advanced Visual Practice. ALP Interdisciplinary course focusing on student productions. Mixing of new and traditional disciplines (multimedia), and visual manifestations of knowledge from the wider field of visual studies, as well as areas normally considered outside art encouraged. Any number of media accepted, including concentration in just one. Embraces international contemporary art, as well as the multiple expressions of visual society. Prerequisites: Visual Arts 54, at least one 100-level Visual Arts class, and at least one Art History course or equivalent work. Not open to students who have previously taken this course as ARTSVIS 128. Instructor: Lasch. One course.

196S. The Photobook: History & Practice. ALP, CCI, CZ Cultural, intellectual and artistic history and uses of the book in photographic practice. Traces technical, conceptual, formal innovations that mark international history of photography books through lectures/hands-on examination of key books, including lesser known innovations and uses of photobook in Eastern Europe, the Soviet Union and Japan. Marries historical awareness with studio practice. Simultaneous immersion in production of images as well as collecting of archives from various cultures. Crafting of photobooks in several genres as students edit, print, scan, assemble materials. Seminar includes readings, discussions, short writings, field trips. Consent of instructor required. Instructor: Noland. One course.

200S. Theories of Visual Studies. ALP, CCI, CZ, R Capstone seminar focusing on advanced visual studies theories, as well as individual senior projects undertaken as a written thesis or visual production. Consent of instructor required. Prerequisite: Art History 108. Not open to students who have previously taken this course as Art History 208S. Instructor: Abe or Stiles. One course.

201S. Wired! New Representational Technologies. ALP, CZ, STS Research and study in material culture and the visual arts expressed by using new visual technologies to record and communicate complex sets of visual and physical data from urban and/or archaeological sites. Introduces techniques for the presentation and interpretation of visual material through a series of interpretative and reconstructive technologies, including the development of web pages (HTML/Dreamweaver), Photoshop, Illustrator, Google Sketch-up, Google Maps, and Flash. Uses two test cases, an archaeological site (Dillon), and an urban/architectural site (Bruzelius) to develop techniques of interpretation and representation. Consent of instructor required. Instructor: Brady, Bruzelius, Dillon, or Olson. One course.

205S. Representations of War in Greece and Rome. ALP, CCI, CZ Considers how war was represented in ancient Greece and Rome and how Greek and Roman society used both war images and images of external enemies in their formulation of a collective identity, including pictorial representations, commemorative building programs, and ephemeral displays such as triumphs and spectacles as instruments in constructing their collective beliefs about themselves, their past, and future. Instructor: Dillon.

210. History of Netherlandish Art and Visual Culture in a European Context. ALP, CCI, CZ, R A contextual study of visual culture in the Greater Netherlands and its underlying historical and socioeconomic assumptions from the late medieval to early modern period, through immediate contact with urban cultures, such as Amsterdam, Leiden, Utrecht, Brussels, Ghent, Bruges, and Antwerp. Includes daily visits to major museums, buildings, and sites; hands-on research in various collections; discussion sessions with leading scholars in the field; and a critical introduction to various research strategies. (Taught in the Netherlands.) Not open to students who have taken Art History 158-159. Not open to students who have previously taken this course as Art History 241. Course credit contingent upon completion of Art History 242. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 241, International Comparative Studies

211. History of Netherlandish Art and Visual Culture in a European Context. ALP, CCI, CZ, R Second half of Art History 241-242; required for credit for 241. (Taught in the
Netherlands.) Not open to students who have taken Art History 158-159. Not open to students who have previously taken this course as Art History 242. Instructor: Van Miegroet. One course. C-L: Medieval and Renaissance Studies 242, International Comparative Studies 215S. From Caricature to Comic Strip. ALP, CCI, CZ, R History of caricature as a medium for political critique and social comment from the eighteenth century to the present, focusing on England, France, Germany, and the United States. Languages of graphic satire in the context of specific historical moments, from the War of Independence to the war in Iraq; history of popular journalism and the comic press; censorship and agitation for press freedom; growth of specialized juvenile graphic magazines and the development of the strip cartoon. Not open to students who have previously taken this course as Art History 221S. Instructor: McWilliam. One course.

220S. Harlem Renaissance. ALP, CCI, CZ, R The art and culture that was produced by and about African Americans (largely in the western metropoles) during the period roughly between the two world wars. Chronological overview, a focus on individual figures, and study of the criticism and creative writings of this period. Other topics include black migrations to urban centers, performance-as-a-visual-paradigm, racial and cultural primitivism, and an alternative, African American stream of early twentieth century visual modernism. Not open to students who have previously taken this course as Art History 269S. Instructor: Powell. One course. C-L: African and African American Studies 269S

225S. Latin American Modernism and Visual Culture. Early twentieth-century modernist movements in Spanish America, Brazil, and the Caribbean. Topics include: race, primitivism, and indigenism; gender; theory of the avant-garde; peripheral modernity; and nationalism, regionalism, and cosmopolitanism. Not open to students who have previously taken this course as Art History 287S. Instructor: Gabara. One course. C-L: Latin American Studies

230S. Trauma in Art, Literature, Film, and Visual Culture. ALP, CZ, EI Theories of trauma applied to visual representations of violence, destruction, and pain in contemporary art, film, and literature, examining the topic through multiple subjects from the Holocaust, cults, gangs, racism, and sexual abuse to cultures of trauma. Theories of trauma examined from a variety of sources including clinical psychology, cultural and trauma studies, art, film, and literature, aiming to enable students to gain the visual acuity to identify, understand, and respond to traumatic images with empathy. Not open to students who have previously taken this course as Art History 295S. Instructor: Stiles. One course.

231S. Spatial Practices. ALP, CCI, CZ, R How space works from medieval refectories to Starbucks, from Jerusalem to Las Vegas, from mikvaot to hot spring spas. Consideration of space through theoretical texts, including Lefebvre, Habermas, Eliade, Zizek, and mapped on specific historical landscapes. Consent of instructor required: preference given to students earning concentration in architecture. Not open to students who have previously taken this course as Art History 222S. Instructor: Wharton. One course.

235S. Poverty of the Visual. ALP, CCI, CZ, EI Interdisciplinary seminar on the relationship between visuality and poverty from 1945 to the present. Theorizes visual culture through an examination of the forms of knowledge produced by impoverished populations. Uses philosophical and perceptual methods to explore the limits and limitations of visuality as it applies to science, ethics, the humanities, and the arts. Readings in the humanities and social sciences focus on issues related to lack, scarcity, absence, minimalism, and invisibility. Students encouraged to fuse theory and practice in research presentations and visual productions. Consent of instructor required. Instructor: Lasch. One course.

250AS. Critical Studies in New Media. ALP, R, SS, STS One course. C-L: see Information Science and Information Studies 250S; also C-L: Literature 261S, Art History 250S, Film/Video/Digital

250BS. Technology and New Media in the University. SS, STS One course. C-L: see Information Science and Information Studies 240S; also C-L: Art History 240S

Art, Art History, and Visual Studies (ARTSVIS/ARTHIST/VISUALST) 149
251A. Media and Democracy. CCI, SS One course. C-L: see Public Policy Studies 221; also C-L: Information Science and Information Studies, Policy Journalism and Media Studies


260S. Special Topics in Visual Studies. ALP Subjects, areas, or themes that embrace a range of disciplines related to visual studies. Instructor: Staff. One course.

THE MAJOR
The student will elect a sequence of courses emphasizing the history of art, visual arts, visual studies, or the combined major in art history/visual arts.

Art History
Major Requirements. The major in art history requires at least eleven courses, eight of which are at the 100 level or above. Two of the three introductory art history courses, Art History 69, 70, and 71, are required, as well as Visual Arts 54 (Introduction to Visual Practice). Art History 71 does not fulfill the non-Western requirement. The other eight courses must include at least one course in each of the following five areas: ancient, medieval, Renaissance/Baroque, modern, and non-western, and may include two courses in visual studies. One of the ten courses must be a 200-level seminar.

Students planning to attend graduate school should consider taking two 200-level seminars: Art History 296S (Methodology of Art History), and a second seminar in the same field as a 100-level course already taken by the student. (For example, Art History 141, (Fifteenth-Century Italian Art), is a logical preparation for Art History 247S (Topics in Italian Renaissance Art). Two years of a foreign language at the college level are strongly recommended. Students interested in preparing for graduate work in architecture should supplement their major requirements with the following courses: Mathematics 31, 32, and either Mathematics 103 or Physics 53L or 54L; Visual Arts 100 and either Visual Arts 54 or 56; Institute of the Arts/Biology 45S; Engineering 75L or 83L. No more than two approved courses taken away from Duke (at other institutions or abroad) may count toward the requirements of the major.

Concentration in Architecture
The department offers a B.A. degree in art history with a concentration in architecture. Thirteen courses are required in four broad areas: (1) Art History 291/2 on a subject approved by the concentration in architecture advisor; (2) seven additional courses in art history, including at least three of the following: Art History 104, 110, 111, 130, 145, 182, 189AD or 189BD, or 206S ("topics" courses that focus on space or architecture may be used to fulfill this requirement, or other courses approved by the concentration in architecture advisor); (3) two courses in visual arts, including Visual Arts 100; (4) three courses in mathematics, physics, and/or engineering courses that offer or require advanced mathematics or physics skills (recommended courses include Mathematics 31, 32, and 103; Physics 53L or 54L; Civil and Environmental Engineering 161 or 162). Distribution requirements for the major must be fulfilled. Certification of this concentration is designated on the official transcript.

Visual Arts
Major Requirements. The major in visual arts requires at least eleven courses including Visual Arts 54 (Introduction to Visual Practice); seven 100-level or above courses within the following visual arts fields: visual practice, architecture, photography
and new media; and three courses either in art history and/or visual studies. All senior visual arts majors are also required to take Visual Arts 200S (Senior Capstone in Visual Arts) during their final spring semester at Duke. Students are highly encouraged to enroll in an independent study during their junior or senior year as one of their upper-level requirements, and prior to their Senior Capstone experience.

**Visual Studies**

*Major Requirements.* The visual studies major requires thirteen courses, at least eight of which must be at the 100 level or above. Courses required for the major include Visual Studies 100D (*Introduction to Visual Culture*) and the capstone course, Visual Studies 200S (*Theories of Visual Studies*), as well as eleven additional courses to be divided as follows: three courses in visual studies; two courses in art history (Art History 69, 70, or 71, and one 100-level course); two courses in visual arts (Visual Arts 54 and one 100-level course); and four previously approved cross-listed courses in any of the departments participating in this major.

**COMBINED MAJOR IN ART HISTORY/VISUAL ARTS**

A combined major in art history and visual arts requires at least fourteen courses. These include: two lower-level courses; Visual Arts 100 (*Drawing*), and Art History 69, 70, or 71 (*Survey of Art*); and twelve upper-level courses. The twelve upper-level courses are to be divided as follows:

- **Art History:** Six upper-level courses distributed across the fields of ancient, medieval, Renaissance/baroque, modern, and non-western (pre-Columbian, African, Asian). Students must take at least one course in four of these five areas. At least one of these courses must be a 200-level seminar.
- **Visual Arts:** Six 100-level courses including a minimum of one course in at least three of the following primary areas of instruction: film/video/digital, graphic design, painting, photography, printmaking, and sculpture. Students are encouraged to enroll as seniors in an independent study and, during the spring of that year, in Visual Arts 269S (*Special Topics in Visual Arts*).

**Departmental Graduation with Distinction**

The department offers work leading to graduation with distinction. See the section on honors in this bulletin.

**THE MINOR**

**Art History**

*Requirements:* Five courses in art history at the 100 level or above.

**Photography**

*Requirements:* Five courses at the 100 level or above, with the following courses required: Visual Arts 115 (*Introductory Photography*); Visual Arts 218 (*Individual Project*); and Art History 199 (*History of Photography, 1839 to the Present*). One transfer course may count toward the requirements for the minor; courses taken pass/fail or Advanced Placement credits do not count towards the minor.

**Visual Arts**

*Requirements:* Five courses in visual arts at the 100 level or above.

**Visual Studies**

*Requirements:* Five courses to be distributed as follows: any three courses at the 100 or 200 level in visual studies and any two courses in any cross-listed discipline previously approved for the visual studies major.
Asian and African Languages and Literature (AALL)

Associate Professor Ching, Chair; Associate Professor of the Practice Kim, Director of Undergraduate Studies; Professors Cooke and Liu; Associate Professors Ching and Yoda; Assistant Professors Ginsburg, Hong, and McLarney; Associate Professors of the Practice Endo, Khanna, Kim, and Lee; Lecturers Cai, Kurokawa, Lo, Plesser, Vaishnava, and Yao; Instructors He, Heish, Kim, and Saito; Affiliated faculty: Professors Allsion (cultural anthropology) and Lawrence (religion); Associate Professor Litzinger (cultural anthropology); Associate Research Professor Moosa (religion)

A major or a minor is available in this program.

Asian and African Languages and Literature provides instruction in several languages and literatures of Asia and Africa. Languages offered are Arabic, Chinese, Hebrew, Hindi, Japanese, and Korean. The program offers Arabic, Chinese, Hebrew, Hindi, Japanese, and Korean literature courses, many in translation.

ASIAN AND AFRICAN LANGUAGES AND LITERATURE (AALL)

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


72. War, Gender, and Postcoloniality. ALP, CCI, EI Covers selected wars in the twentieth century by examining the intersections between the experience of war and the ways in which men and women represent themselves. Focus on World Wars I and II, Vietnam, the Algerian Revolution, the Lebanese Civil War, and the Gulf War. Instructor: Cooke. One course. C-L: Islamic Studies


110A. West African Rootholds in Dance. ALP, CCI One course. C-L: see Dance 110A; also C-L: African and African American Studies 110A, Cultural Anthropology 129A, Religion 161A

110B. West African Rootholds in Dance. ALP, CCI One course. C-L: see Dance 110B; also C-L: African and African American Studies 110B, Cultural Anthropology 129B, Religion 161B


125S. Bilingualism. CCI, SS Examination of bilingualism at the individual, interpersonal, and social levels from psycholinguistic, socio-linguistic, anthropological, and educational perspectives. Issues to include the relation between language and cognition, language development, language identity, socio-linguistic practices in multicultural settings, language maintenance, and language policy and planning. Instructor: Kim. One course. C-L: Linguistics 125S

132. Representing the Middle East. CCI, CZ, SS One course. C-L: see Cultural Anthropology 132; also C-L: History 131B, Turkish 132, International Comparative Studies 141B, Visual Studies 110H, Islamic Studies

135. Kundalini Yoga and Sikh Dharma. ALP, CCI, CZ One course. C-L: see Dance 155; also C-L: Religion 161H, International Comparative Studies 170H

136. Dance and Religion in Asia and Africa. ALP, CCI, CZ One course. C-L: see Dance 158; also C-L: Cultural Anthropology 149C, Religion 161N, African and African American Studies 158, International Comparative Studies 102A
137. Contemporary Culture in South Asia. ALP, CCI, CZ Integrates literature, film, anthropology, and history to explore themes and questions about modern South Asia and the realities of its peoples. Focus on contemporary academic and socio-cultural debates. Instructor: Staff. One course. C-L: International Comparative Studies, Documentary Studies

142. Girl Culture, Media, and Japan. ALP, CCI, CZ Examination, through visual and literary texts, of the way in which girlhood, girl culture, and girl bodies have figured in the construction of gender, nation, and consumer culture in modern to contemporary Japan. Instructor: Yoda. One course. C-L: Women's Studies 142, Literature 165G

145. Arab, Society and Culture in Film. ALP, CCI, CZ, EI Examination of Arab worldviews (including cultural variations, artistic expressions, view about gender, and religion, and perspectives toward the U.S.). Explores the development of images of the Arab and seeks to understand them in the context of the Arab world as well as in its relationship to the West. Analyzes the dynamics between norms of modern civil society and those dictated by religious traditions. Critically examines current Western assumptions, representations and understanding of Arab societies, and the moral frameworks in which different choices are debated in the Arab context. Instructor: Lo. One course.

149. Dance and Dance Theater of Asia. ALP, CCI, CZ One course. C-L: see Dance 149; also C-L: Cultural Anthropology 149, Theater Studies 133, Religion 161C, International Comparative Studies 170C


154. History and Practice of the Dance and Dance-theatre of India. ALP, CCI, CZ One course. C-L: see Dance 147; also C-L: Cultural Anthropology 149B, Religion 161J, Theater Studies 134

155. Introduction to Israeli Culture. ALP, CCI, CZ The examination of contemporary Israeli culture through art, film, architecture, and literature. Concentration on interdisciplinary critical approaches to culture; interconnections of culture and Zionist ideology in the Israeli projection of the nation. Instructor: Staff. One course. C-L: Jewish Studies 139, Religion 161P, Literature 163L

156. Representing the Holocaust. ALP, CCI, CZ Issues of representing the Holocaust in Israel through various cultural media, such as literature, film, criticism, historiography, legal documents, and music. The limits of representation: the historical and ideological deployment of Holocaust representation in different cultural contexts. Instructor: Ginsburg. One course. C-L: Literature 165B, Religion 161K, Jewish Studies 130

157S. Travel, Gender, and Power. One course. C-L: see Cultural Anthropology 191QS; also C-L: Literature 132BS, Women's Studies 181S

158S. The Middle East in Popular Culture. CCI, CZ, SS One course. C-L: see Cultural Anthropology 191AS; also C-L: Literature 163MS

159. Palestine, Israel, Arab-Israeli Conflict. CCI, EI, SS One course. C-L: see Cultural Anthropology 155; also C-L: Jewish Studies 155, Islamic Studies

160. Introduction to the Civilizations of Southern Asia. CCI, CZ The literary, historic, linguistic, and ethnic diversity of South Asia presented through both readings and contemporary films. Not open to students who have taken Religion 160. Instructor: Staff. One course. C-L: Cultural Anthropology 101, History 193, Religion 144, International Comparative Studies

162. Modern Japanese Literature and Culture. ALP, CCI, CZ An examination of modern Japanese culture through a variety of media including literary texts, cultural representations, and films. Different material each year; may be repeated for credit. Instructor: Ching or Yoda. One course. C-L: International Comparative Studies

163. Korean Literature in Translation. ALP, CCI A chronological overview from earliest times until today. Begins with a brief introduction to Korean language and history as they relate to the study of literature. Novels, essays, classics, and various other genres. Instructor: Kim. One course. C-L: Literature 165E, International Comparative Studies


166. Egypt: Mother of the World. ALP, CCI, CZ Modern history of Egypt: Napoleon's conquest in 1798, the "Description of Egypt", Orientalist knowledge, the Ottoman Empire, Muhammad Ali, Islamic Reform, the Arab Renaissance, Women's Awakening, the Islamic Revival, Muslim Brotherhood, Arab Nationalism, Gamal Abd al-Nasser, war and peace with Israel, the culture of the petroleum industry, Egyptian cosmopolitanism, Egyptian letters (novel, drama, poetry), Egyptian cinema, mass media, television, and popular culture. Includes an optional voyage to Egypt during the spring vacation. Instructor: McLarney. One course.

167. Trauma and Passion in Korean Culture. ALP, CCI Representations of passion and trauma in Korean society and history through various cultural media including literature, historical texts, autobiographies, film, and other visual media. In dealing with historical traumas such as the Korean War, Japanese colonization, Western imperialism and political upheavals, sub-topics to include war, love, melodrama, nationalism, ideological strife and longing and loss. Instructor: Staff. One course. C-L: Literature 165F, International Comparative Studies 120C


169. China and the West. CCI, CZ One course. C-L: see History 172B


172S. Chinese Literature and Culture in Translation. ALP, CCI, CZ The transmutation of Chinese culture and literature from the perspective of translation conceived as a broad range of literary and cultural activities, including transactions between cultures, appropriation of a foreign work into a Chinese version, and adaptation of one literary-cultural form
into another (such as literature into drama or film). Instructor: Hong. One course. C-L: Literature 165A

173S. Gender Jihad: Muslim Women Writers. CCI Roles and representations of women in Muslim societies of Asia (including Indonesia, South Asia, and the Middle East) and Africa, as well as in Muslim minority societies (including Europe and the United States). Examination of ways writers and filmmakers project images of women in today's Muslim societies. Focus on women as producers of culture and as social critics. Instructor: Cooke. One course. C-L: Islamic Studies


176. Gender in Dance and Theatre. ALP, CCI, CZ One course. C-L: see Dance 175; also C-L: Women's Studies 111, Theater Studies 132, Cultural Anthropology 149A, International Comparative Studies 170E

178. Introduction to Islamic Communities in North Carolina. CCI, CZ, SS The diverse locales, practices, and ethnicities. Topics include: basic tenets of Islam, Islam in America, African American Islam, mosque and school, interfaith and pluralism, and Islamic feminism. Includes field trips and group projects in the local community. Instructor: McLarney. One course. C-L: Religion 161O, Islamic Studies


180S. Literati/Literature Culture: Pre Modern Chinese Literature. ALP, CCI Survey of works in Chinese from Confucius to the Qing Dynasty including short stories, novels, autobiographical writings, and poetry. Topics include the role of the educated elite in relation to literature and culture and how the literati portray themselves in their works. Relations between orthodoxy and marginalization of the literati and its impact on their writing. Instructor: Baird. One course.

181. China from Antiquity to 1400. CCI, CZ One course. C-L: see History 172C

182. Modern Political Thought in China and Europe. CCI, CZ, SS One course. C-L: see History 112A

183. The Palestinian-Israeli Conflict in Literature and Film. ALP, CCI, CZ, EI A cultural study of the collapse of the Israeli-Palestinian peace process and failure of Israeli and Palestinian doves to transform their respective communities and to change conditions on the ground. Focus on self-criticism as manifested in Israeli and Palestinian literature and cinema and on its limits. Instructor: Cooke and Ginsburg. One course. C-L: Jewish Studies 132, Literature 163Q


188. Modern Chinese Cinema. ALP, CCI, CZ Films, documentaries, television series, and soap operas produced in Mainland China in the post-Mao era, modern and contemporary Taiwan, and Hong Kong. Topics include the history and aesthetics of the new wave cinema, soap operas as the new forum for public debate on popular culture, and debate over the relationship between Euro-American modernist and the national cinema. C-L Film Video. Instructor: Hong. One course. C-L: Literature 112J, Film/Video/Digital 111A, Visual Studies 105G

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195. Special Topics. Topics vary each semester. Instructor: Staff. One course.

195S. Special Topics. Seminar version of AALL 195. One course.


207S. Research Methods In International Area Studies. CCI One course. C-L: see Latin American Studies 202S; also C-L: Cultural Anthropology 291S, Russian 203S, Romance Studies 202S, German 264S

230S. Space, Place, and Power. CCI, SS One course. C-L: see Cultural Anthropology 285S; also C-L: Women's Studies 225S, Literature 287S

250S. Chinese Media and Pop Culture. ALP, CCI, R Current issues of contemporary Chinese media and popular culture within the context of globalization. Cultural politics, ideological discourse, and intellectual debates since gai jie kaifang (reform and opening up); aspects of Chinese media and popular culture: cinema, television, newspapers and magazines, the Internet, popular music, comics, cell phone text messages, and fashion. Instructor: Liu. One course. C-L: Information Science and Information Studies 225S

252. Special Topics in Asian and African Literature. ALP, R Topics vary each semester. Instructor: Staff. One course.


253. East Asian Cultural Studies. ALP, CCI, CZ, R East Asia as a historical and geographical category of knowledge emerging within the various processes of global movements (imperialism, colonialism, economic regionalism). (Same as Asian and African Languages and Literature 153 but requires extra assignments.) Instructor: Ching or Yoda. One course. C-L: Cultural Anthropology 254, International Comparative Studies

256. Representing the Holocaust. ALP, CCI, CZ Issues of representing the Holocaust through various cultural media, such as literature, criticism, film, art, music, and the most recent wave of memorials and museums to be built in America, Europe, and Israel. The limits of representation; the historical and ideological deployment of Holocaust representation in different cultural contexts. Same as AALL 156 but requires extra assignments. Instructor: Ginsburg. One course. C-L: Jewish Studies 230

262. Modern Japanese Literature and Culture. ALP, CCI, CZ, R An examination of modern Japanese culture through a variety of media including literary texts, cultural representations, and films. Different material each year; may be repeated for credit. (Same
267. **Trauma and Passion in Korean Culture.** ALP, CCI Representations of passion and trauma in Korean society and history through various cultural media including literature, historical texts, autobiographies, film, and other visual media. In dealing with historical traumas such as the Korean War, Japanese colonization, Western imperialism and political upheavals, sub-topics to include war, love, melodrama, nationalism, ideological strife and longing and loss. (Same as Asian and African Languages and Literature 167 but requires extra assignments.) Instructor: Staff. One course.

271. **Japanese Cinema.** ALP, CCI, CZ An introduction to the history of Japanese cinema focusing on issues including the relation between the tradition-modernity or Japan-West in the development of Japanese cinema, the influence of Japanese films on the theory and practice of cinema abroad, and the ways in which cinema has served as a reflection of and an active agent in the transformation of Japanese society. (Same as African Languages and Literature 171, but requires extra assignments.) Instructor: Yoda. One course.

279. **Melodrama East and West.** Melodrama as a genre in literature and as a mode of representation in film and other media. Issues include: gender construction, class formation, racial recognition, and national identity-building. Emphasis on comparative method attending American and Chinese cultures and the politics of cross-cultural representation. (Same as Asian African Languages 179 but requires extra assignments.) Instructor: Hong. One course.

280S. **Literati/Literature Culture: Pre Modern Chinese Literature.** ALP, CCI, R Survey of works in Chinese from Confucius to the Qing Dynasty including short stories, novels, autobiographical writings, and poetry. Topics include the role of the educated elite in relation to literature and culture and how the literati portray themselves in their works. Relations between orthodoxy and marginalization of the literati and its impact on their writing. (Same as Asian and African Languages and Literature 180S but requires extra assignments.) Instructor: Staff. One course.

288. **Seminar on Chinese Cinema.** CZ, R Films, documentaries, television series, and soap operas produced in mainland China in the post-Mao era. Topics include the history and aesthetics of the cinema, soap operas as the new forum for public debates on popular culture, the emerging film criticism in China, the relationship of politics and form in postrevolutionary aesthetics. (Same as Chinese 188S but requires extra assignments.) Research paper required. Prerequisite: Chinese 184S or advanced oral and written proficiency in Mandarin Chinese. Instructor: Staff. One course. C-L: International Comparative Studies

288S. **Seminar on Modern Chinese Cinema.** CZ, R Films, documentaries, television series, and soap operas produced in mainland China in the post-Mao era. Topics include the history and aesthetics of the cinema, soap operas as the new forum for public debates on popular culture, the emerging film criticism in China, the relationship of politics and form in postrevolutionary aesthetics. (Same as Chinese 188S but requires extra assignments.) Research paper required. Prerequisite: Chinese 184S or advanced oral and written proficiency in Mandarin Chinese. Instructor: Staff. One course. C-L: International Comparative Studies

291. **Research Independent Study.** Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.

**ARABIC (ARABIC)**

1. **Elementary Arabic.** FL Understanding, speaking, reading, and writing modern standard Arabic. Language laboratory. Instructor: Lo. One course.
2. **Elementary Arabic. FL** Continuation of Arabic 1. Prerequisite: Arabic 1 or equivalent. Instructor: Lo. One course.

35. **Conversational Egyptian and Contemporary Culture. FL** Designed to develop proficiency in conversational Egyptian Arabic within a cultural context: manners, social interaction, customs, and holiday traditions. Consent required if student has not taken any Arabic previously. Instructor: Staff. One course.

63. **Intermediate Arabic. CZ, FL** Reading, composition, and conversation in modern standard Arabic. Readings include selections from the Qur'an, contemporary literature, and the Arabic press. Prerequisite: Arabic 2 or equivalent. Instructor: Staff. One course.

64. **Intermediate Arabic. CZ, FL** Continuation of Arabic 63. Prerequisite: Arabic 63 or equivalent. Instructor: Staff. One course.

101. **Duke-Administered Study Abroad: Advanced Special Topics in Arabic. CCI** Topics differ by section. Instructor: Staff. One course.

125. **Advanced Arabic. ALP, CCI, FL** Readings in classical and contemporary fiction and nonfiction. Works include al-Jahiz, Ibn Arabi, Taha Husain, Ibn Battuta, Ghada al-Samman and *1001 Nights*. Prerequisite: Arabic 64 or equivalent. Instructor: Staff. One course. C-L: International Comparative Studies

126. **Advanced Arabic. ALP, FL** Continuation of Arabic 125. Prerequisite: Arabic 125 or equivalent. Instructor: Staff. One course. C-L: International Comparative Studies

183. **Topics in Arabic. ALP, CCI, FL** Readings and other material, including films, television, and radio broadcasts. Exercises in composition. Prerequisite: Arabic 126 or consent of instructor. Instructor: Cooke. One course. C-L: International Comparative Studies

184. **Topics in Arabic. ALP, FL** Continuation of Arabic 183. Prerequisite: Arabic 126 or consent of instructor. Instructor: Cooke. One course. C-L: International Comparative Studies

191. **Research Independent Study. R** Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

**CHINESE (CHINESE)**

1. **Elementary Chinese. FL** Introduction to speaking, understanding, reading, and writing modern standard Chinese (Mandarin, or *putonghua*, based on the Beijing dialect). Instructor: Lee. One course.

2. **Elementary Chinese. FL** Continuation of Chinese 1. Prerequisite: Chinese 1 or equivalent. Instructor: Lee. One course.

14. **Intensive Elementary Chinese. FL** Covers the basic elementary Chinese language curriculum (Chinese 1-2 and 63) in one semester. Equal attention to listening, speaking, reading and writing skills. Introduction to some aspects of Chinese culture. Not open to students who have studied Chinese for more than two years pre-college or students who can converse on topics of daily concerns in Mandarin Chinese. Six class meetings a week. Instructor: Staff. Two courses.

25B. **Abridged First-Year Chinese for Advanced Beginners. FL** Continuation of Chinese 25A. Prerequisite: Chinese 25A. Instructor: Staff. One course.

35. **Literacy in Chinese. FL** Designed for students who can converse in Mandarin Chinese about personal information or daily topics but have little or no reading and writing skills in Chinese. All four language skills emphasized with additional work on reading and writing. Students who wish to make sufficient progress in two semesters to advance to Chinese 135
in the fall semester of the following year must take Chinese 35 and 36. Instructor: Yao. One course.

36. Literacy in Chinese. FL Continuation of Chinese 35. Students who wish to make sufficient progress in two semesters to advance to Chinese 135 in the fall semester of the following year must take Chinese 35 and 36. Instructor: Yao. One course.


64. Intermediate Chinese. FL Continuation of Chinese 63. Prerequisite: Chinese 63. Instructor: Cai. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Chinese. CCI Topics differ by section. Instructor: Staff. One course.

125. Advanced Chinese. CCI, FL Proficiency in speaking, aural comprehension, reading, and writing. Content drawn from newspaper articles, essays, and other readings concerning history, culture, and current political, social, and simple economic issues in China and Taiwan. Prerequisite: Chinese 64 or equivalent. Instructor: Yao. One course. C-L: International Comparative Studies

126. Advanced Chinese. CCI, FL Continuation of Chinese 125. Prerequisite: Chinese 63, 64 or equivalent. Instructor: Yao. One course. C-L: International Comparative Studies 120E

135. Readings in Modern Chinese. ALP, CCI, FL Designed for students who have completed Chinese 35 and 36 (previously Chinese 6 and 7). Introduction to more complex syntax with special attention to Chinese cultural and socio-political issues and topics. Content drawn from newspaper articles, essays, and short stories. Helps students to make sufficient progress in one semester to advance to Chinese 183S or 184S in the spring semester. Conducted in Chinese. Prerequisite: Chinese 35, 36; or equivalent. Instructor: Cai. One course.

136. Reading in Modern Chinese. ALP, CCI, FL Continuation of Chinese 135. Conducted in Chinese. Prerequisite: Chinese 135 or equivalent. Instructor: Cai. One course. C-L: International Comparative Studies 120F


181S. Language and Society. ALP, CCI, CZ, FL Materials from public media used to analyze diverse social phenomena and cultural issues in contemporary China. Major focus on developing literary reading and writing skills along with learning methods of writing academic Chinese essays on a wide range of complex topics. Topics include popular culture, food, marriage outlooks, Cultural Revolution, Confucianism, and social issues after the economic reform in China. Analysis of cultural and literary texts from variety of media and genres providing a basis for practice in discussion and writing. Instructors: Lee and staff. One course.

183S. Topics in Modern Chinese. ALP, CCI, FL Readings and other material, including web sites, films, television, and radio broadcasts. Exercises in composition. Prerequisite: Chinese 125, 126, 127, 129, or consent of instructor. Instructor: Staff. One course. C-L: International Comparative Studies

184S. Topics in Modern Chinese. ALP, CCI, FL Continuation of Chinese 183S. Readings of modern short stories and essays on special topics of the cultural politics in modern and contemporary China. Additional materials such as web sites, films, and television. Instructor: Staff. One course. C-L: International Comparative Studies

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195. Contemporary Chinese Culture. ALP, CCI, FL Elements of Contemporary Chinese Culture including media, popular culture, literature and the arts. Prerequisite: Chinese language proficiency at the fourth year level or the equivalent. Instructor: Liu. One course.

196. Topics in Chinese Culture and Society. ALP, CCI, CZ, FL Topics in Chinese culture and society including media, popular culture, literature, and the arts of China. Prerequisite: Chinese language proficiency at the fourth-year level or the equivalent. Instructor: Liu. One course.

Courses Offered in the Duke Study in China Program at Capital Normal University


129A. Special Topics in Modern Chinese. CCI, CZ, FL Equivalent to fifth year. Discussion based on oral and written reports and topical readings. Offered in the Duke Study in China Program at Capital Normal University. Instructor: Staff. One course.

129B. Special Topics in Modern Chinese. CCI, CZ, FL Equivalent to fifth year. Readings and discussion of selections from modern Chinese literature, expository prose, and the Chinese press. Offered in the Duke Study in China Program at Capital Normal University. Instructor: Staff. One course.

193. Directed Study on Contemporary China. FL, R Research and field studies culminating in a paper approved and supervised by the resident director. Includes field trips
on cultural and societal changes in contemporary China. Instructor: Staff. One course. C-L: Cultural Anthropology 163A, Political Science 100GA

HEBREW (HEBREW)

1. Elementary Modern Hebrew. FL Introduction to speaking, understanding, reading, and writing modern Hebrew. Language laboratory. Instructor: Plesser. One course. C-L: Jewish Studies 1

2. Elementary Modern Hebrew. FL Continuation of Hebrew 1. Prerequisite: Hebrew 1 or equivalent. Instructor: Plesser. One course. C-L: Jewish Studies 2

63. Intermediate Modern Hebrew. ALP, FL Reading, composition, conversation, and language laboratory. Prerequisite: Hebrew 1, 2 or equivalent. Instructor: Plesser. One course. C-L: Jewish Studies 63

64. Intermediate Modern Hebrew. ALP, CZ, FL Continuation of Hebrew 63. Prerequisite: Hebrew 63 or equivalent. Instructor: Plesser. One course. C-L: Jewish Studies 64

100. Duke-Administered Study Abroad: Advanced Special Topics in Hebrew. CCI Topics differ by section. Instructor: Staff. One course. C-L: Judaic Studies

125S. Advanced Modern Hebrew. ALP, CCI, FL Introduction to modern Hebrew literature and Israeli culture. Emphasis on critical reading of literary and cultural texts, including prose, poetry, drama, and film. Conducted in Hebrew. Consent of instructor required. Prerequisite: Hebrew 64 or equivalent. Instructor: Ginsburg. One course. C-L: Jewish Studies 125S, International Comparative Studies

126S. Advanced Modern Hebrew. ALP, CCI, FL Continuation of Hebrew 125S. Consent of instructor required. Prerequisite: Hebrew 125S or equivalent. Instructor: Ginsburg. One course. C-L: Jewish Studies 126S, International Comparative Studies 141AS

183S. Topics in Modern Hebrew. ALP, CCI, FL One course. C-L: Jewish Studies 131S

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course. C-L: Judaic Studies

HINDI (HINDI)

1. Elementary Hindi. FL Conversation, basic grammar, and vocabulary; introduction to the Devanagari script and the reading of graded texts. Instructor: Vaishnava. One course.

2. Elementary Hindi. FL Continuation of Hindi 1. Prerequisite: Hindi 1. Instructor: Vaishnava. One course.


64. Intermediate Hindi. CZ, FL Continuation of Hindi 63. Prerequisite: Hindi 63. Instructor: Vaishnava. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Hindi. CCI Topics differ by section. Instructor: Staff. One course.

125. Advanced Hindi. ALP, CCI, FL Proficiency in reading, writing, and speaking. Prerequisite: Hindi 64 or equivalent. Instructor: Khanna. One course.

126. Advanced Hindi. ALP, CCI, FL Continuation of Hindi 125. Prerequisite: Hindi 125 or equivalent. Instructor: Khanna. One course. C-L: International Comparative Studies 170B
183S. Topics in Hindi. ALP, CCI, FL Readings in prevailing literary and mass media forms. Prerequisite: Hindi 126 or consent of instructor. Instructor: Khanna. One course. C-L: International Comparative Studies

184S. Topics in Hindi. ALP, CCI, FL Continuation of Hindi 183S. Prerequisite: Hindi 126 or consent of instructor. Instructor: Khanna. One course. C-L: International Comparative Studies

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

JAPANESE (JPN)


2. Elementary Japanese. FL Continuation of Japanese 1. Prerequisite: Japanese 1 or equivalent. Instructor: Endo. One course.


64. Intermediate Japanese. FL Continuation of Japanese 63. Prerequisite: Japanese 63 or equivalent. Instructor: Endo. One course.


191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

205S. Seminar in Japanese. ALP, CCI, FL Topics vary each semester. Prerequisite: Japanese 184 or equivalent. Instructor: Staff. One course.


KOREAN (KOREAN)

1. Elementary Korean. FL Designed for true beginners with no prior knowledge of Korean, introduces the basics of Korean. The sounds of spoken Korean, the writing system Hangul,
and greetings; basic communication, fundamentals of grammar, and elementary reading skills for simple sentences. Instructor: Kim. One course.

2. Elementary Korean. FL Continuation of Korean 1. Developing speaking and listening skills for everyday personal communication; reading simple narratives and descriptions; learning core grammatical patterns. Prerequisite: Korean 1 or equivalent (knowledge of Hangul and rudimentary speaking ability). Instructor: Kim. One course.

63. Intermediate Korean. FL Focus on developing reading skills for narrative and descriptive texts, and on writing. Practice in listening and speaking in social settings with peers and colleagues; development of complexity and sociolinguistic appropriateness in speech. Prerequisite: Korean 2 or equivalent (ability to communicate in service encounters and express oneself in basic personal situations). Instructor: Kim. One course.

64. Intermediate Korean. CZ, FL Continuation of Korean 63. Listening and speaking about cultural practices and historical events, reading and writing informative and expository texts, and honing grammatical usage and vocabulary choice. Prerequisite: Korean 63 or equivalent (ability to speak on daily topics fluently and to read simple stories). Instructor: Kim. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Korean. CCI Topics differ by section. Instructor: Staff. One course.

125. Advanced Korean. ALP, CCI, FL Listening and speaking about cultural, social, and political issues; reading and responding to authentic texts; honing grammatical usage at the discourse level. Prerequisite: Korean 64 or equivalent (fluency in speaking, familiarity with culture, and experience in reading at grade 1 to 3 level). Instructor: Staff. One course.

126S. Advanced Korean. ALP, CCI, FL Continuation of Korean 125. Introduction to Chinese characters; focus on reading and discussing authentic texts on modern Korean history and its social and cultural legacies. Prerequisite: Korean 125 or equivalent (fluency in speaking, familiarity with culture, and experience in reading at grade 4 or 5 level). Instructor: Staff. One course.

183S. Topics in Korean. ALP, CCI, FL Focus on developing interpretive and expressive abilities through reading and discussions of essays, short stories, and newspaper articles. Prerequisite: Korean 126S or equivalent. Instructor: Staff. One course.

184S. Topics in Korean. ALP, CCI, FL Continue developing interpretive and expressive abilities through reading and discussions of essays, short stories, and newspaper articles. Prerequisite: Korean 183S or equivalent. Instructor: Staff. One course.

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

WOLOF (WOLOF)

1. Elementary Wolof. FL Introduction to reading, writing, speaking, and understanding standard Wolof. Includes the manuals of the Senegalese literacy program. Instructor: Ndiaye. One course.

2. Elementary Wolof. FL Introduction to reading, writing, speaking, and listening skills in the Wolof language. Includes manuals, newspapers, music recordings, video clips, and movies. Prerequisite: Wolof 1 or equivalent. Instructor: Ndiaye. One course.

THE MAJOR

Asian and African Languages and Literature offers a curriculum that reflects an increasing awareness of the interconnectedness of the globe. It provides students with an understanding of languages, literatures, and cultures beyond America and the West to prepare them for professional work or advanced graduate study in a number of international arenas. The curriculum is based on a theoretical framework that examines contemporary national and ethnic cultures of Asia and Africa within a global context. Its mission is to foster a view of literature and culture at once indigenous and global, informed by local histories of internal development as well as by theories of cross-cultural influence. The course requirements for the major provide an intellectual vision that includes both study of language and culture practice and a critical theoretical framework for analyzing cultural experience.

The major requires a minimum of ten courses (at least eight of which must be at the 100 level or above), with concentration in one of the six following areas: Arabic, Chinese, modern Hebrew, Hindi, Japanese, or Korean. The major is organized in accordance with three overlapping structures, as reflected in the following requirements:

I. Within the area of concentration, the student will acquire advanced linguistic skills in Arabic, Chinese, modern Hebrew, Hindi, Japanese, or Korean language and a comprehensive knowledge of a single culture related to each language. The major provides exposure to different methodologies for interpreting indigenous literary and cultural tradition. Eight (8) semester courses are required for this category. They include: (1) a minimum of three language courses, of which two must be at or above the 100-level; (2) a minimum of three courses at or above the 100-level on the literature or culture of the area of concentration, two of which must be taken within the Asian and African Languages and Literature department. Majors should consult with their Arabic, Chinese, Hebrew, Hindi, Japanese, or Korean advisors for appropriate courses from other departments.

II. Within the larger framework of Asian and African Languages and Literature, the student is required to take Introduction to Asian and African Literature and Culture (Asian and African Languages and Literature 121) This course aims at helping the student to establish cross-cultural links with students concentrating in other Asian and African languages.

III. The major in Asian and African Languages and Literature also requires students to analyze critically the issue of indigenous cultural identities. The program fosters a view of literature and culture that is at once local and global. This view draws on theoretical inquiries into indigenous cultural identities associated with such conceptual categories as gender, class, ethnicity, nation, aesthetics, and sexuality. Therefore, every student is required to complete one Asian and African Languages and Literature course at or above the 100 level outside the student’s language of concentration that includes an examination of the above conceptual categories.

Study Abroad. An integral part of the student’s experience will be study abroad; while not a requirement of the major, it is strongly encouraged. Students should discuss this option as early as possible with their major advisor.

Advising. Majors will be assigned one faculty advisor in their area of concentration.

Departmental Graduation with Distinction. Majors with grade point averages of 3.3 or higher may apply in their junior year to the director of undergraduate studies for Graduation with Distinction (see the section on honors in this bulletin). Students working on their honors thesis will meet together at the beginning of the spring semester of their senior year to report on their research topics and again toward the end of that semester to

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make a final presentation on their projects. In order to graduate with honors, the student must obtain at least an *A*- in the honors seminar.

**THE MINOR**

A minor is offered to students interested in the study of language, literature, and culture of a particular region of Asia and Africa. Areas of concentration include: Arabic, Chinese, modern Hebrew, Hindi, Japanese, or Korean.

The minor offers two tracks: (1) Concentration in an Asian and African Language and (2) Asian and African Languages and Literature. Five courses are required in each track.

1) **Minor in an Area of Language Concentration:** includes Arabic, Chinese, modern Hebrew, Hindi, Japanese, or Korean. Five courses are required as follows: Four language courses above the level of 02. (Students are expected to take 63, 64, 125, and 126; however, students with proficiency of intermediate level or higher must take 183 and 184, or upper-level reading courses, for example, Chinese 181, Japanese 205, or independent studies courses to fulfill the four-course requirement). One 100-level Asian and African Languages and Literature or culture course in the area of concentration.

2) **Minor in Asian and African Languages and Literature.** Five courses are required as follows: Two language courses at the intermediate level (63 and 64) or above; one 100-level Asian and African Languages and Literature course on the literature or culture of the area of concentration; one 100-level culture or literature course in another Asian and African Languages and Literature language area outside of the language of concentration; Asian and African Languages and Literature 121 (Introduction to Asian and African Literature and Culture).

**Astronomy**

For courses in astronomy, see Physics on page 437.

**Balto-Finnic**

For courses in Balto-Finnic, see Slavic and Eurasian Studies on page 535

**Biochemistry**

For courses in biochemistry, see Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates on page 401; also see biology (on page 172) and chemistry (on page 189) majors.

**Biological Anthropology and Anatomy (BAA)**

Associate Professor Schmitt, Chair; Assistant Professor of the Practice Digby, Director of Undergraduate Studies; Professors Glander, Kay, Myers (orthopedics), Smith (biology), Terborgh (NSEES), and Yoder (biology); Associate Professors Alberts (biology), Churchill, Drea, Major (radiology and surgery), Roth (biology), Schmitt, and Taylor (physical therapy); Assistant Professor Hare; Professors Emeriti Hylander and Simons; Associate Research Professor Wall; Assistant Professor of the Practice Digby; Adjunct Professor van Schaik; Adjunct Associate Professor Ankel-Simons, Brown, Lambert, and Williams; Adjunct Assistant Professors Berger, Brockman and Rasmussen; Laboratory Research Analyst Johnson; Adjunct Senior Research Scientist Brink; Adjunct Research Scientists Anderson, Pope, and Struhsaker; Research Associates Madden and van Nievelt; Lecturing Fellow Chattrath

A major or minor is available in this department.

Biological anthropology and anatomy is an interdisciplinary department centering on the origin and evolution of human beings and their close biological relatives. The department and its course offerings have three general focuses: primate behavior and ecology, primate
paleontology, and functional and comparative anatomy. Significant opportunities for independent research are found at the Duke Lemur Center, which houses a unique and diverse range of nonhuman primates, especially prosimians from Madagascar. Advanced students can study original fossils and casts at the division of fossil primates (Duke Lemur Center) and in the department's laboratories, which also afford opportunities to study comparative anatomy from an adaptive and evolutionary perspective.

40. Next of Kin: Understanding the Great Apes. NS, STS Survey of ape (gibbons, orangutans, chimpanzees, bonobos, and gorillas) morphology, ecology and behavior. Topics include evolutionary history, locomotion, social interactions, mating systems, reproduction, parental care, infanticide, medicinal use of plants, cooperative hunting, alliances, warfare, conflict resolution, and cross-species measures of intelligence. Intended for non-majors. Instructor: Digby or staff. One course.


45. How We Once Did Things. NS, STS The body-machine interface in human history and prehistory. How biological factors have determined the use of tools and weapons, designed clothing, shelters, and water-craft, domesticated animals and arranged farms and cities. Intended for nonmajors and majors. Instructors: Churchill and Vogel. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


80FCS. Focus Program Special Topics. NS Special topics seminar open only to students in the Focus Program. Instructor: Staff. One course.

93. Introduction to Biological Anthropology. NS, STS Human behavior and anatomy from an evolutionary perspective. The historical development of pre-Darwinian evolutionary thinking; Darwin's contribution to evolutionary theory; Mendel's work on genetics; modern synthesis framing the study of human origins and behavior in the context of modern evolutionary biology; primate behavior and evolution; a survey of human paleontology and human biology (emphasizing variation and adaptation); the origins of human social organization and culture. Instructor: Staff. One course.

93D. Introduction to Biological Anthropology. NS, STS Same as Biological Anthropology and Anatomy 93 except instruction is provided in lectures and one small laboratory meeting each week. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Biological Anthropology and Anatomy. Topics differ by section. Instructor: Staff. One course.

101L. Quaternary Prehistory of Southern Africa. NS, R A combined laboratory and lecture course covering the extant fauna and flora of southern Africa, Quaternary fauna and flora (focusing on the Cornelian and Florisian Land Mammal Ages), paleoenvironmental reconstruction, MSA archeology, dating methods applicable to the Quaternary, and Quaternary geology. Taught in South Africa (summer program) with guest lectures by South African archeologists, palynologists, and geologists. Labs emphasizing work with recent and fossil faunal material and with Middle Stone Age artifacts. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Berger, Brink, or Churchill. One course.

102L. Paleanthropological Field Methods. NS, R A hands-on program of instruction covering methods of maintaining archeological provenance (grid systems, stratigraphic reconstruction, point provenancing techniques, and field recording), use of mapping
technology (infrared theodolite and global positioning systems, with an overview of geographic information systems), working with topographic maps and aerial photos, recording of geological profiles, recovery and preparation of fossils, and basic identification of animal fossils and stone tools. Taught in the field in South Africa during the summer. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Berger, Brink, or Churchill. One course.

120. Food For Thought: The Biology of Nutrition. NS, R, STS Food as medicine and medicine as food. The medicinal and dangerous properties of fruits, herbs, vegetables, and fungi. How human cultures impact diet (for example, eating disorders/addictive behaviors); how modern technology and non-invasive data collection techniques currently allow for studies of eating patterns, nutrition, ties between diet and society in terms of historical and evolutionary perspectives. Instructor: Glander. One course.

132. Human Evolution. NS Evolutionary biology of the hominidae. Anatomical and behavioral adaptations and phylogeny of fossils and living primates including Homo sapiens. Prerequisite: Biological Anthropology and Anatomy 93 or equivalent. Instructor: Churchill or staff. One course.

132S. Human Evolution Seminar. NS, W A writing-intensive seminar version of Biological Anthropology and Anatomy 132. Prerequisite: Biological Anthropology and Anatomy 93 or equivalent. Instructor: Churchill or staff. One course.

133L. The Human Body. NS Human gross anatomy seen from a functional and evolutionary perspective. Laboratory involving study of prossected cadavers and other anatomical preparations. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Wall or staff. One course.

134L. Anthropology of the Skeleton. NS An introduction to the basics of human osteological analysis. Identification and siding of all the bones of the human body and the major osteological landmarks on each bone; basics of bone histology, development and growth; and fundamentals of anthropological analysis of human skeletal remains (archeological treatment of burials; determination of gender, populational affinities, stature; paleopathological analysis; medicolegal applications). Prerequisite: Biological Anthropology and Anatomy 93 or equivalent. Instructor: Churchill. One course.

135. Human Functional Anatomy. NS Basics of functional morphology (including elementary biomechanics), an overview of connective tissue structure and mechanics, and a systematic overview (from head to toe) of human anatomy from a functional perspective. Emphasis on connective and other tissues involved in functioning of the musculoskeletal system (primarily bone, cartilage, tendons, ligaments, and muscle). Prerequisite: Biological Anthropology and Anatomy 93 and 133L or 134L. Instructor: Churchill. One course.

137. Ecology and Adaptation of Hunters and Gatherers. CCI, NS The ecology of extant and extinct foraging societies; focus on human behavioral solutions to subsistence problems associated with different environments (tropical/neotropical forest, boreal forest, coastal, arctic, grassland/savannah, desert). Topics include edible resource distribution in varied environments and its relationship to mobility and subsistence strategies in modern hunter-gatherers; and the archeological and fossil evidence for the evolution of human subsistence behavior. Prerequisite: Biological Anthropology and Anatomy 93 or Biology 25L. Instructor: Churchill. One course.

143. Primate Ecology. NS, R The study of ecology using primates as examples. Primate biogeography; biomes, dietary specializations, use of space; plant-animal interactions, community ecology; the concept of the niche and methods used in ecology. The basics of human ecology and the role of ecology in conservation. Includes occasional labs. Instructor: Digby or staff. One course.

144L. Primate Field Biology. NS, R, W Survey of field methods used to document primate behavior. Laboratory includes observations of free-ranging primates at the Duke Primate
146. **Sociobiology. NS, STS** Sociobiological theory reviewed and applied to the social behavior of nonhuman primates, hominids, and humans. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Digby. One course.

146S. **Sociobiology Seminar. NS, STS** Sociobiological theory reviewed and applied to the social behavior of nonhuman primates, hominids, and humans. A writing-intensive seminar version of Biological Anthropology and Anatomy 146. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Staff. One course.

147. **Bodies of Evidence: Introduction to Forensic Anthropology. NS, STS** An introduction to medicolegal anthropology and death investigation. Topics include crime scene protocol and body recovery, basics of osteology, determining time since death, making personal identification, determining the manner and mode of death, postmortem modification of skeletal remains, protocols for mass disasters, human rights applications, and courtroom testimony. Not open to students who have had Biological Anthropology and Anatomy 47. Instructor: Churchill. One course.


161. **Introduction to Anthropological Statistics. QS** Introductory course covering univariate and bivariate statistics as applied in biological anthropology; characteristics of populations and variables; parametric statistical methods emphasized. Instructor: Wall. One course.

171. **Primate Sexuality. NS, STS** A comparative and integrative study of primate sex and reproduction. The material is presented in three sections: the first focuses on primate social organization, mating systems, and reproductive strategies; the second focuses on the endocrine system and behavioral endocrinology, and; the third focuses on sexual differentiation of morphology, brain and behavior. In each section, this course places human sexuality within the broader context of the primate order. Prerequisites: Biological Anthropology and Anatomy 93(D) or Biology 25L. Instructor: Drea. One course. C-L: Biology 171

172L. **Primate Anatomy. NS, W** The comparative anatomy of primates from the perspective of adaptation and phylogeny. Laboratory includes some dissection or prosection of human and nonhuman primates. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Staff. One course.

173L. **The Primate Skeleton. NS, R** The osteology of modern and fossil primates. Focus on skeletal anatomy relevant to primate evolution. Primate systematics, the anatomy of bone, the primate fossil record, and the comparative method. Prerequisite: Biological Anthropology and Anatomy 93. Instructor: Staff. One course.

180. **Current Issues in Biological Anthropology and Anatomy. NS** Selected topics in methodology, theory, or area. Instructor: Staff. One course.

180L. **Current Issues in Biological Anthropology and Anatomy. NS** Same as Biological Anthropology and Anatomy 180 except in laboratory format. Instructor: Staff. One course.

180S. **Current Issues in Biological Anthropology and Anatomy. NS** Same as Biological Anthropology and Anatomy 180 except in seminar format. Instructor: Staff. One course.

182S. **Thought in Action: The Origins of Human Tool Use (B, C). NS, R, SS, STS** One course. C-L: see Psychology 144S

183S. **Evolution of Primate Social Cognition. NS, R** Social life of primates, with a focus on cognitive implications of social complexity. Primary emphasis on how social organization and social behavior influence the acquisition, expression, and transmission of information or knowledge. Topics include: tool use and causality; discrimination and insight

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learning; social influences on learning (for example, facilitation, inhibition, observation, imitation); knowledge of the social domain (individual recognition, kinship, hierarchies); coalitions, alliances, cooperation, and reciprocity; social conflict and reconciliation; traditions and cultural transmission; vocal and gestural communication; tactical deception and social manipulation; visual monitoring; intentionality; and instruction. Instructor: Drea.

One course.

184S. Primate Conservation. EI, NS, STS Concepts, practice, and ethics of conservation biology, both at the species and community level. Relevant aspects of biogeography, ecology, behavior and demography; human impact (deforestation, hunting); conservation strategies/policies (objectives, design of protected area networks, impact on local human populations). Impact of cultural, political, ethical considerations on primate conservation. Instructor: Staff. One course.

192. Independent Study. Directed reading, tutorial, or individual project (often including library research and detailed analysis) in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or other approved product. Open only to qualified students, who, before being given permission to register, must submit to the faculty advisor a written proposal outlining the area of study and listing the goals and meeting schedule. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to qualified students, who, before being given permission to register, must submit to the faculty advisor a written proposal outlining the area of study and listing the goals and meeting schedule. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195S. Senior Seminar. Prerequisites: BAA 93, a 100-level course in biological anthropology and anatomy, and consent of director of undergraduate studies. Instructor: Staff. One course.

196S. Senior Seminar. Prerequisites: BAA 93, a 100-level course in biological anthropology and anatomy, and consent of director of undergraduate studies. Instructor: Staff. One course.

For Seniors and Graduates

234L. Advanced Human Osteology. NS, R Advanced laboratory techniques for human osteological analysis; identification and siding of fragmented skeletal elements and teeth; differences between human and non-human bone; biomechanical analysis, functional morphology, hominin osteology; case studies of human skeletons used to produce written skeletal report. Instructor: Staff. One course.

238S. Primate Adaptation. NS A study of primate adaptation from an evolutionary perspective. Topics vary according to student interests but may include history and functional significance of locomotor and feeding adaptations, craniofacial morphology, sense organs, reproductive systems, and language in primates, including humans. Seminar format but, depending on topic, may include laboratory analysis of materials. Prerequisite: 100-level anatomy or morphology course or consent of instructor. Instructor: Williams. One course.


240S. Hominid Socioecology. NS, R Analysis of how socioecological studies of human foragers and nonhuman primates can inform the interpretation of the hominin fossil/
archaeological record. Summary of documented historical changes during hominid evolution, and identification of approaches required to develop testable reconstructions. Models for the evolution in hominids of bipedalism, ranging and foraging, hunting, food sharing, intersexual relationships and sexual division of labor, communication (including language), culture, technology, life history, parental care, and social organization, as well as their mutual relationships. Prerequisite: Biological Anthropology and Anatomy 93(D) and 132. Instructor: Staff. One course.

243S. Comparative Primate Ecology. NS, R Advanced readings and discussion of current papers and monographs in primate ecology with special emphasis on comparative studies. Prerequisites: Biological Anthropology and Anatomy 93, Biological Anthropology and Anatomy 143 recommended. Instructor: Glander or staff. One course.

244L. Methods in Primate Field Ecology. NS, R Survey of field methods used in the study of primate ecology, including the habitat assessment, mapping, and behavioral observations using computer technology. Laboratory includes observations of primates at the Duke University Primate Center. Prerequisite: Biological Anthropology and Anatomy 93; Biological Anthropology and Anatomy 143 recommended. Instructor: Glander or staff. One course.

245S. Primate Social Evolution. NS, R Ecological determinants of, and biological constraints on, social strategies and systems, with an emphasis on primates. Prerequisite: Biological Anthropology and Anatomy 93 and 143 or 144L or 146; or consent of instructor. Instructor: Staff. One course.

246. The Primate Fossil Record. NS A survey of fossil primates including early humans. The diversity, anatomy, and behavior of primates as related to the origin and spread of past primates. The radiation of each main group of primates in the succession leading to humans illustrated with slides, casts, and fossils. Topics include geochemical dating, timing of molecular clocks, and various procedures for classifying primates. Prerequisite: Biological Anthropology and Anatomy 93 or consent of instructor. Instructor: Staff. One course.

247. The Hominid Fossil Record. NS Origin and successive stages of development of human ancestors. Detailed analysis of adaptive types and cultural developments. Personalities and current controversies in the study of hominid paleontology. Prerequisite: Biological Anthropology and Anatomy 93 and 132, or consent of instructor. Instructor: Staff. One course.

248S. Evolution of Mammals. NS The origin, adaptive radiation, and phylogenetic relationships of mammals, as inferred from the fossil record. Consent of instructor required. Instructor: Staff. One course.

249S. Microevolution and Sociobiology. NS The relationship between resource distribution, social structure, and rate and direction of evolutionary change, including speciation. Mating systems, dispersal patterns, and mechanisms of new social group formation examined from the perspective of their effects on the genetic structure of populations and species radiations. Prerequisite: Biological Anthropology and Anatomy 93 or Biology 25L; Biology 120 recommended. Instructor: Staff. One course.

250. Biometry. NS, QS, R Advanced course in biological statistics. Principles of parametric and nonparametric statistics and their application to hypothesis testing in biological anthropology. Topics include study design, analysis of variance, regression, and allometry. Student analysis of comparative anatomical and behavioral field data resulting in a research paper. Prerequisites: Biological Anthropology and Anatomy 93; introductory statistics course. Consent of instructor required. Instructor: Wall. One course.

274. Genomic Perspectives on Human Evolution. NS, R, STS One course. C-L: see Biology 274

280L. Special Topics Laboratory. NS Special topics in methodology, theory, or area. Consent of instructor required. Instructor: Staff. One course.
280S. Seminar in Selected Topics. NS Special topics in methodology, theory, or area. Consent of instructor required. Instructor: Staff. One course.

281L. Special Topics Laboratory. NS Special topics in methodology, theory, or area. Consent of instructor required. Instructor: Staff. One course.

281S. Seminar in Selected Topics. NS Special topics in methodology, theory, or area. Consent of instructor required. Instructor: Staff. One course.

287S. Macroevolution. NS One course. C-L: see Biology 287S

289L. Comparative Mammalian Anatomy. NS A practical survey of anatomical diversity in mammals. An emphasis on dissections of a broad variety of mammals. A broader perspective on specific anatomical features provided in the lectures. Consent of instructor required. Instructor: Staff. One course.

293S. Advanced Research in Biological Anthropology and Anatomy. NS, R Advanced independent research in a seminar that provides instruction in proposal writing, hypothesis/prediction formulation, methods, data collection and analysis, literature review, and writing of formal research article. Consent of instructor required. Instructor: Digby. One course.

THE MAJOR

For the A.B. Degree

Prerequisite. Biological Anthropology and Anatomy 93 or 93D.
Corequisites. Biology 25L or equivalent.

Major Requirements. Nine courses are required, not including the above prerequisites and corequisites. Eight courses must be 100 level or above, of which two must be 200 level. One course is required in each of the following areas: 1) human/primate paleontology or anatomy and 2) primate behavior and/or ecology (see listings in the Handbook for Majors). At least five courses must be taken in Biological Anthropology and Anatomy; four additional courses may be taken in related departments (e.g., Biology, Cultural Anthropology, Environmental and Ocean Sciences, Psychology, and Statistics) with the approval of an advisor. One course must be a lab/field experience (research independent study or Primatology internship may count toward this requirement when appropriate).

For the B.S. Degree

Prerequisite. Biological Anthropology and Anatomy 93 or 93D.
Corequisites: Biology 25L (or equivalent)
Chemistry 21L, 22L, and 151L
Mathematics 31 and 32
Physics 51L and 52L, or 53L and 54L

Major Requirements. Eight courses numbered 100 or above are required (not including the above prerequisites and corequisites), of which two must be at the 200 level. They must be distributed in the following manner: one course is required in each of the following: 1) human/primate paleontology or anatomy and 2) primate behavior and/or ecology (see listings in the Handbook for Majors); five courses must be in Biological Anthropology and Anatomy; up to three courses may be taken in related departments (e.g., Biology, Earth and Ocean Sciences, Psychology or Statistics) with the approval of advisor. One course must be a lab/field experience (research independent study or Primatology internship may count toward this requirement when appropriate). At least one course must involve statistics or quantitative methods (Statistics 100 or Psychology 117, or equivalent).

Departmental Graduation with Distinction

To qualify for the graduation with distinction program, students must have a G.P.A. of 3.0 overall and 3.5 within Biological Anthropology and Anatomy. To earn distinction, students typically spend one year conducting independent research with a faculty mentor and writing a substantial senior thesis. Students must submit a brief (one- to two-paragraph) description of the honors project, the names of the faculty comprising the
examination committee, and the signature of the student’s faculty mentor to the director of undergraduate studies secretary by the end of the first week of classes of the student’s next-to-last semester (e.g., fall semester for May graduates). The examination committee should consist of three faculty members, at least two of whom are in the department of Biological Anthropology and Anatomy.

THE MINOR

Requirements. Biological Anthropology and Anatomy 93 or 93D; one course in primate/human paleontology and/or anatomy; one course in primate behavior and/or ecology; two elective courses numbered 100 or above in Biological Anthropology and Anatomy. Approved courses for each of the above subfields are listed in the Handbook for Majors.

Biology (BIOLOGY)

Professor Kihehart, Chair; Associate Professor Alberts, Director of Undergraduate Studies; Lecturer Grunwald, Associate Director of Undergraduate Studies; Professors Benfey, Brandon (philosophy), Christensen (NSEES), Clark, Crowder (NSEES), Dong, Forward (NSEES), Goldstein (molecular genetics and microbiology), Jackson, Kiehart, Kirby (pediatrics), McClay, Mitchell-Olds, Morris, H. Nijhout, Noor, Nowicki, Rausher, Reynolds, Rittschof (NSEES), Rosenberg (philosophy), Shaw, Siedow, Smith, Staddon (psychology and brain sciences), Sun, Terborgh (NSEES), Uyenoyama, Vilgalys, Willard (molecular genetics and microbiology), Wray, and Yoder; Associate Professors Alberts, Bejsovec, Cunningham, Donohue, Lutzoni, Manos, McShea, Pei, Pryer, Roth, Willis, and Wilson; Assistant Professors Baugh, Bernhardt, Chen, Drea (biological anthropology and anatomy), Haase, Johnsen, Koelle, Leal, Magwene, D. Sherwood, and Wright; Professors Emeriti Barber, Boynton, Fluke, Gillham, Gregg, Hellmers, Klopfer, Knoerr (NSEES), Nicklas, Searles, Stone, Strain, Tucker, Wainwright, Ward, White, and Wilbur; Associate Professors of the Practice Broverman and Motten; Assistant Professors of the Practice Armaleo, Lemons, and Mercer; Research Professors Cook-Deegan (public policy), Livingstone, Vogel, and Williams; Assistant Research Professor N. Sherwood; Adjunct Professors Eubanks, Kohorn and Lacey; Adjunct Associate Professors DePriest and M. Nijhout; Adjunct Assistant Professors Isikhuemhen, and Riginos; Adjunct Professor of the Practice Hartshorn; Adjunct Assistant Professors of the Practice Deinert and Zahawi; Lecturers Grunwald, Perz-Edwards, and Reid; Instructors Eason and Hill

A major and a minor are available in biology.

The biology major and minor and biology courses in a variety of areas are offered by the Department of Biology. Additional courses in the biological sciences are offered by the Departments of Biological Anthropology and Anatomy, Chemistry, and Psychology and Neuroscience in Trinity College of Arts and Sciences; by the basic sciences departments in the School of Medicine; and by the Pratt School of Engineering and the Nicholas School of the Environment and Earth Sciences.

Biology 25L constitutes the normal introductory course for students planning to major in the biological sciences and is a prerequisite for intermediate and advanced courses in biology. For non-majors, this course may count for the area requirement in the natural sciences. Biology 19 also meets the introductory requirement by advanced placement and Biology 20L by transfer credit. Biology 26L (A or B) constitutes the second semester of the typical introductory sequence (following Biology 25L) and satisfies the prerequisite requirement for students planning to major in biology (see below).

10L. Marine Biology. EI, NS, STS Physical and chemical aspects of estuarine and marine ecosystems and environments. Functional adaptations of marine organisms and the role of man and society on the ecosystems. Includes field trips to local environments and their relation to societal activity and policy. For students not majoring in natural sciences. (Given at Beaufort.) Instructor: Staff. One course. C-L: Marine Sciences

20L. Introductory Biology. NS Credit for introductory biology by transfer of college-level work not corresponding to Biology 25L in content, but including laboratory work. May be counted toward Natural Sciences Area of Knowledge. Equivalent to Biology 25L as prerequisite. One course.

25L. Principles of Biology. NS Introductory course for students planning to major in biology and for students in other majors intending to pursue a postgraduate degree in the life sciences. Provides an integrated overview of biology, covering basic principles in cell and molecular biology, energy transport, development, physiology, genetics, microevolution, macroevolution, and ecology. Instructors: Alberts, Grunwald, McClay, or Motten, and staff. One course.

26AL. Organismal Diversity. NS Broadly integrated survey of biological diversity, including the major lineages of bacteria, plants, protists, animals and fungi, with an emphasis on phylogenetic relationships. Lectures closely coordinated with laboratory exercises emphasizing live material to present ecological and functional anatomical features of representative species. Small class, hands-on laboratory-intensive format with limited enrollment for first and second-year students. Field trips to distinctive habitats in North Carolina. Not open to students who have taken Biology 26BL. Instructor: Motten. One course.

26BL. Organismal Diversity. NS Exploration, in large class format, of the diversity of life by emphasizing evolutionary, structural, and functional aspects of the major lineages of bacteria, plants, protists, animals and fungi. Lecture and laboratory coordinated to provide both general and specific guides to understanding and interpreting morphological, developmental and DNA sequence data in the context of the Tree of Life. Laboratory includes inventory of organismal diversity, practical exercises, and student presentations to reinforce and develop lecture-based topics. Not open to students who have taken Biology 26AL. Instructor: Cunningham and Manos. One course.

42. Life's Beginnings. NS, STS Cells, molecules, and evolution from the start. The origin and evolution of life on earth as a case study in science, as a human enterprise, and as a way of knowing. Intended for non-biology majors. Instructor: Mercer. One course.


46. AIDS and Other Emerging Diseases. NS, STS Explores the interaction of biology and culture in creating and defining diseases through an investigation of acquired immunodeficiency syndrome (AIDS) and other emerging diseases: molecular biology; biology of transmission and infection; the role of people and culture in the evolution of infectious diseases; reasons for the geographic variations in disease. The inductive-deductive methodology of science is both used to develop and test hypotheses as well as examined itself as an analytical tool. Intended for nonmajors. Instructor: Broverman. One course. C-L: International Comparative Studies 46, Global Health

46B. AIDS and Other Emerging Diseases: Focus on Kenya. NS, R, STS Same as Biology 46 with added research project of developing a digital textbook on HIV/AIDS in collaboration with students and faculty in Kenya tailored to the needs of African universities. Students learn library research skills as they collect primary literature and images, and write reviews and analyses. Instructor: Broverman. One course. C-L: International Comparative Studies 46B, Global Health

47. The Biology of Dinosaurs. NS, STS Introduction to the history of ideas about the anatomy, diversity, behavior, reproduction, and ecology of dinosaurs and their relatives. The historical and social contexts of important scientific discoveries and controversies. Controversies and current research used to illustrate the scientific method as a way of
learning about the natural world. Topics such as plate tectonics, the age of the earth, natural selection, and parental care in dinosaurs illustrating how scientists draw upon observation and experiment to frame, test, and refine hypotheses. Intended for nonmajors. Instructor: Wray. One course.

48. Genetics, Genomics, and Society: Implications for the 21st Century. EI, NS, SS, STS Introduction to the foundation of genomic sciences with an emphasis on recent advances and their social, ethical and policy implications. Foundational topics including DNA, proteins, genome organization, gene expression, and genetic variation will be interwoven with contemporary issues emanating from the genome revolution such as pharmacogenetics, genetic discrimination, genomics of race, genetically modified crops, and genomic testing. Genomic sciences and policy science applied to present and future societal, and particularly ethical, concerns related to genomics. Intended for non-Biology majors. Not open to students who have taken Biology 118. Instructor: Haga and Hill. One course. C-L: Public Policy Studies 48

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

52. Duke-Administered Study Abroad: Special Topics in Biology. NS Topics differ by section. Instructor: Staff. One course.

53. The Dynamic Oceans. NS, STS One course. C-L: see Earth and Ocean Sciences 12

90. Plants and Human Use. NS, STS Historical and present interactions between humans and plants like coffee, tea, sugar, opium, pepper, potato and hemp, illustrating major changes in human civilization and cultures as a result. Social economic, trade, exploration, spiritual, medicinal, and plant structural and chemical reasons underlying the pivotal roles certain plant species have played in the development of human culture and technology. Case studies of different plant commodities (products) revealing these biological and historical interactions. For nonmajors. Instructor: Pryer. One course.

92FCS. Global Diseases. EI, NS, STS Biological, social, and cultural factors impacting global disease spread and/or reduction; current controversies in vaccination and eradication programs; ethics of foreign agencies and funders prioritizing domestic health programs; ethics of global variation in disease burdens. Open only to students in the Focus Program. Instructor: Broverman. One course. C-L: Global Health

93FCS. Focus Program Topics in Biology. NS Open only to students in the Focus Program; for first-year students with consent of instructor. Instructor: Staff. One course.

95S. Topics in Modern Biology. NS Occasional seminars in various topics in biology. Intended for nonmajors. Instructor: Staff. One course.

101. Biogeography in an Australian Context. NS, STS Distribution of plants and animals in space and time as determined by the interaction of geophysics, geology, climate, and evolutionary history. Special emphasis on the unique terrestrial and marine faunas and floras of the Australian continent and on the impact of humans on the distribution of these plants and animals. Taught in Australia. Instructor: Staff. One course. C-L: Environment 168, Earth and Ocean Sciences 168

103L. General Microbiology. NS Classical and modern principles of the structure, physiology, and genetics of microorganisms and their roles in human affairs. Prerequisite: one course in a biological science or consent of instructor. Instructor: Dong, Lutzoni, Siedow, or Vilgalys. One course. C-L: Global Health, Global Health


108L. **Comparative and Functional Anatomy of the Vertebrates. NS** The structure, function and evolution of the vertebrate body. Emphasis on understanding the functional, evolutionary and developmental basis for the similarities and differences observed among living vertebrates. Laboratories examining specific problems in the evolution of major organ systems through dissection, comparison and analysis of functional data. Instructor: Smith. One course.

109. **Conservation Biology and Policy. EI, NS, STS** Introduction to the key concepts of ecology and policy relevant to conservation issues at the population to ecosystems level. Focus on the origin and maintenance of biodiversity and conservation applications from both the biology and policy perspectives (for example, endangered species, captive breeding, reserve design, habitat fragmentation, ecosystem restoration/rehabilitation). (Given at Beaufort.) Prerequisites: introductory biology; suggested: a policy and/or introductory ecology course. Instructors: Crowder (Beaufort) and Rubenstein (visiting summer faculty). One course. C-L: Marine Sciences

110L. **Ecology. NS, R** One course. C-L: see Environment 110L; also C-L: Visual Studies 116A

111L. **Principles of Animal Morphology. NS, R** Principles of animal structure, from three different perspectives: (1) function; (2) development and; (3) evolution. Prerequisites: Biology 26AL or Biology 26BL or Biology 176L or equivalent course in animal diversity. Instructor: Roth. One course.

114L. **Biological Oceanography. NS, R** Physical, chemical, and biological processes of the oceans, emphasizing factors controlling distribution and abundances of organisms. The theory, methods, and limitations of biological oceanographic research. The laboratory teaches quantitative methods, experimental design, data acquisition, data processing, and data analysis culminates in a research cruise where the students organize into a scientific party. One course (spring); one and one-half courses (summer). (Given at Beaufort) Prerequisite: Biology 25L. Instructor: Staff. Variable credit. C-L: Environment 114L, Marine Sciences

116. **Fundamentals of Ecology and Evolution. NS, STS** Fundamental principles of ecology and evolutionary biology. Interaction between biotic and abiotic forces in shaping the dynamics of ecological systems, and how those dynamics are influenced by human activities. Mechanisms of evolutionary change as an interplay between ecology and genetics. Evidence for, and consequences of, evolutionary change on both human and geological time scales. Prerequisite: Biology 25L. Not open to students who have taken Biology 110L or 120. Instructor: Bernhardt, Koelle, Mercer, Morris, Rausher, Uyenoyame, or Wilson. One course.

117. **Cell and Organismal Physiology. NS** Mechanisms and processes that organisms use to deal with the challenges posed by their physical, chemical, and ecological contexts. Structure-function relationships explored from molecules and cells to tissues and organ systems. Topics include cellular architecture, energy metabolism, molecular motors, motility/locomotion, sensory mechanisms/signal transduction, ionic/osmotic balance, gas exchange, thermal physiology. Constraints and adaptations related the evolution of eukaryotes and the evolution of multicellularity. Prerequisite: Biology 25L or equivalent. Not open to students who have taken Biology 110L or 120. Instructor: Bernhardt, Koelle, Mercer, Morris, Rausher, Uyenoyame, or Wilson. One course.

118. **Genetics and Molecular Biology. NS, STS** Explores flow of information from gene to phenotype. Social implications of modern genetic analysis and the genomic revolution. Topics include: organization and stability of genomes from bacteria to higher vertebrates (humans), conversion of the genetic code into a functioning organism, classical transmission (Mendelian) genetics and its relevance to human hereditary disorders, content of the genome and social implications of genetic knowledge including issues of genetic privacy, eugenics, genetically modified organism, and cloning. Prerequisite: Biology 25L or equivalent;
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Chemistry 22L or equivalent. Instructor: Bejsovec, Haase, Mitchell-Olds, Sun, or staff. One course.

119. Cellular and Developmental Biology. NS The role of genes and proteins in mediating basic cellular and development processes. Topics include: structure and function of cellular membranes and organelles; protein targeting and transport; signal transduction; role of the cytoskeleton in cell shape and motility; function of the immune system; genetic regulation of cell growth/division and the relationship to cancer; genetic control of development processes. Prerequisite: Biology 118. Instructor: Kiehart, McClay, Perz-Edwards, D. Sherwood, or staff. One course.

121. Evolution of Animal Form. NS, R, W A survey of the history of animal life focusing on major revolutions in design such as the Cambrian explosion, the Mesozoic radiation of dinosaurs, and the Cenozoic radiation of mammals. Exploration of three views of form: the Darwinian view which stresses function; the historicist view which emphasizes historical accident; and the structuralist view that form is mainly the result of fixed mathematical relationships. The different ways in which each view applies the comparative method. Prerequisite: Biology 25L. Instructor: McShea. One course.

122. Population Genetics. NS Use of genetic sequence analysis to examine aspects of natural populations of humans and other organisms in the past and present. Topics include molecular phylogenetics; the origin, maintenance, and loss of major features of evolution; the evolutionary process at the molecular level; reconstruction of human origins and paleohistory; and genetic information in forensic studies. Prerequisite: Biology 25L or equivalent. Instructor: Uyenoyama. One course.

123. Analysis of Ocean Ecosystems. NS The history, utility, and heuristic value of the ecosystem; ocean systems in the context of Odum's ecosystem concept; structure and function of the earth's major ecosystems. (Given at Beaufort.) Prerequisite: one year of biology, one year of chemistry, or consent of instructor. Instructor: Staff. One course. C-L: Environment 123, Marine Sciences

124. Molecular Evolution. NS Evolutionary dynamics of genes in populations, molecular phylogenetics, evolutionary pattern and process at the molecular level and some of their consequences for organism-level evolution. Evolution of genomes, gene families, gene function, regulatory genes, and of developmental control genes. Prerequisite: Biology 25L or equivalent, and Biology 118 or consent of instructor. Instructor: Mercer. One course.

125. Biology and Conservation of Sea Turtles. NS, STS Essential biology of sea turtles (evolution, anatomy, physiology, behavior, life history, population dynamics) and their conservation needs; emphasis on their role in marine ecosystem structure and function. Basic ecological concepts integrated with related topics including the conservation and management of endangered species, the contributions of technology to the management of migratory marine species, the role of research in national and international law and policy, and the veterinary aspects of conservation. (Given at Beaufort.) Field trip to Trinidad required. Prerequisite: Introductory Biology. Consent of instructor required. Instructor: K. Eckert and S. Eckert. One course. C-L: Environment 135, Marine Sciences

125L. Biology and Conservation of Sea Turtles. NS, STS Laboratory version of Biology 125. Includes laboratory and field experience with animals and with their habitat requirements. (Given at Beaufort.) Prerequisite: Introductory Biology. Instructor: K. Eckert and S. Eckert. One course. C-L: Environment 135L, Marine Sciences

126. Marine Mammals. NS, STS The biology of cetaceans, pinnipeds, sirenians, and sea otters. Topics covered include the diversity, evolution, ecology, and behavior of marine mammals and their interactions with humans. Detailed consideration given to the adaptations that allow these mammals to live in the sea. Evaluation of the scientific, ethical, and aesthetic factors influencing societal attitudes toward these animals and of their conservation management in light of domestic legislation and international treaties. (Given
126L. Marine Mammals. NS, R, STS Laboratory version of Biology 126. Laboratory and field exercises consider social organization, behavior, ecology, communication, and anatomy of local bottlenose dolphins. (Given at Beaufort.) Prerequisite: introductory biology. Instructor: Read or staff. One course. C-L: Marine Sciences

127. Marine Megafauna. NS, STS Ecology, systematics, and behavior of large marine animals including giant squid, bony fishes, sharks, sea turtles, seabirds, and marine mammals. Relations between ocean dynamics, large marine animals, and their role in ocean food webs. Impact of human activities and technological advancement on populations. Economic, social, and policy considerations in the protection of threatened species. Prerequisite: Biology 25L or equivalent. Instructor: Crowder. One course.

129L. Marine Ecology. NS, R, W Factors that influence the distribution, abundance, and diversity of marine organisms. Course structure integrates lectures and field excursions. Topics include characteristics of marine habitats, adaptation to environment, species interactions, biogeography, larval recruitment, and communities found in rocky shores, tidal flats, beaches, mangrove, coral reefs, and subtidal areas. Not open to students who have taken Biology 203L. (Given at Beaufort fall and summer.) Prerequisite: introductory biology. Instructors: Crowder or Kirby-Smith (Beaufort). One course. C-L: Environment 139L, Marine Sciences


132S. Marine Biodiversity. NS Marine biodiversity in the context of theoretical ecology and environmental physiology. Topics include methods for quantifying and evaluating diversity and biological diversity in major marine habitats. Primary literature examples focus on quantifying human impacts and developing conservation measure. Prerequisite: introductory biology. Instructor: Staff. Half course. C-L: Marine Sciences

133S. Molecular Approaches to Questions of Physiology, Ecology, and Evolution in the Marine Environment. NS Techniques of molecular biology as they relate to physiological, ecological, and evolutionary questions. Examples from the subcellular to global scale taken from classic and contemporary readings from the primary scientific literature. Each participant in the course presents a critical analysis of the literature on a chosen subject. Prerequisite: introductory biology. Instructor: Staff. Half course. C-L: Environment 133S, Marine Sciences

134. Fundamentals of Tropical Biology. NS Conceptual themes in ecology, emphasizing tropical organisms and ecosystems. Topics range from behavioral and physiological adaptation of individuals to processes and patterns in diverse assemblages, including: mutualism and parasitism in the tropics, competition and the structure of tropical guilds, pollination ecology, forest dynamics and gap-phase regeneration, island biogeography and the design of biological reserves, and evolutionary processes responsible for promoting high tropical biodiversity. (Taught in Costa Rica.) Instructor: Staff. One course.

134L. Fundamentals of Tropical Biology. NS, R Laboratory version of Biology 134. Field activities and independent field research projects. (Taught in Costa Rica, summer). Instructor: Staff. One course. C-L: Latin American Studies

135L. Research Methods in Tropical Biology. NS, R, W Field-based course. Student design and implementation of ecological projects in different tropical ecological zones. Introduces basic concepts in statistical populations, sampling techniques, and experimental design and hypothesis testing. Topics include: measuring abiotic micro- and macroclimatic variables; estimating population abundance and distribution; performing demographic and life history analyses; investigating mutualistic, competitive, and predator-prey coevolution.
ary processes; and measuring patterns of species diversity. (Taught in Costa Rica.) Instructor: Staff. One course. C-L: Latin American Studies

136L. Introduction to Field Ethnobiology. NS, STS Four-week summer course in Costa Rica on the scientific study of subsistence, medicinal, ceremonial, and aesthetic use of plants and animals by human societies. Lectures and demonstrations in San José. Travel to southern Costa Rica to learn the use of resources in contrasting communities including Zancudo coastal community, Abrojos Guaymi Indian Reservation, and Guatil, a Chorotega Indian village. Offered by the Organization for Tropical Studies in Costa Rica from mid-July to mid-August. Prerequisites: one semester of biology and Spanish. Taught at Gómez, Las Cruces Biological Station/Wilson Botanical Garden. Instructor: Staff. One course.

137. South African Ecosystems and Diversity. NS, STS Conceptual themes in ecology emphasizing savannas; also consideration of fynbos, highveld, Podocarp forests, coastal and intertidal zones. Topics include climate and geology of South Africa; roles of fire, drought, human presence, invasive species, and herbivores in shaping ecosystems; top-down and bottom-up control of mammalian herbivores; plant pollination and seed dispersal; role of rivers in defining savanna characteristics; origin and maintenance of biodiversity; vertebrate social systems; major research programs in Kruger National Park (taught in Kruger National Park, South Africa). Prerequisite: Biology 25L or equivalent. Instructor: McClearn. One course. C-L: Environment 197

138L. Field Research in Savanna Ecology. NS, R, W Field-based course stressing student design and implementation of research projects in savanna ecosystems. Introduces basic concepts in experimental design and hypothesis testing, long-term monitoring, sampling techniques, parametric and nonparametric analysis. Each student will participate in several faculty-led research projects. In addition, students in small groups will design independent projects, consult with faculty, collect and analyze data, and make oral and written presentations of their results. Each student will work on two of these independent projects. (Taught in Kruger National Park, South Africa) Prerequisite: Biology 25L or equivalent. Instructor: McClearn. One course. C-L: Environment 198L

140L. Plant Diversity. NS Major groups of living plants, their evolutionary origins and phylogenetic relationships. Fee for field trip. Prerequisite: Biology 25L or equivalent. Instructor: Shaw. One course.

141L. Plant Communities of North Carolina. NS Overview of plant communities in the mountains, piedmont, and coastal plain of North Carolina, primarily through field trips. The dominant native plants of each community; the biology and identification of important invasive species. Required weekend field trip to the mountains, and several weekend daytrips. Prerequisite: Biology 25 or equivalent. Instructors: Manos. One course.

142L. Plant Systematics and Evolution. NS, STS Plants as providers of food, shelter, and medicine and as one of evolution's great success stories. Phylogenetic principles and methods of analysis used to recognize major families of vascular plants. Flowering plants and the evolution of floral form and function, pollination, and breeding systems. Sources of taxonomic evidence including morphology, anatomy, and DNA. Both traditional and modern identification tools. The interdisciplinary nature of plant systematics and its importance in modern society. Field trips. Instructors: Pryer. One course.


147. Systems Biology: An Introduction for the Quantitative Sciences. NS Introduction to concepts and applications of Systems Biology. Identification of molecular interactions that underlie cellular function using high dimension data acquired through high-throughput
approaches. Intended for students with prior training in quantitative fields (computer science, math, physics, statistics, engineering). Includes small group projects in Systems Biology. Students with prior training in biological sciences will register for Computer Science 111. Instructor: Benfey. One course.

149S. Comparative Biomechanics. NS How living organisms interact with the physical world, their design, and operation. Covers solid and fluid mechanics using examples from plants, invertebrates, and vertebrates. Emphasizes biological principles. Prerequisite: Biology 25 or equivalent; Physics 53 or equivalent. Instructor: Staff. One course.

150L. Physiology of Marine Animals. NS, R, W Comparative physiology of estuarine and marine animals. Physics and chemistry of estuarine and marine environments and physiological adaptations of animal residents. Focus on theory, behavioral, and physiological responses of animals to the major environmental drivers of temperature, salinity, oxygen, and light. Lectures and laboratories illustrating the approaches and methodology, analysis techniques, and written reporting of classical environmental physiology research. One course (fall); one and one-half courses (summer). (Given at Beaufort.) Prerequisites: Biology 25L and Chemistry 12L or 22L. Instructor: Forward. Variable credit. C-L: Marine Sciences

151L. Principles of Animal Physiology. NS, R, W Animals as physical and chemical machines; respiration, circulation, neural and hormonal coordination, movement, water balance/excretion, metabolism, thermoregulation, digestion, and responses to special environments. Emphasis on vertebrates, but many invertebrate systems discussed. Instructional and independent investigations. Research proposal and class presentation required. Prerequisites: Biology 25L and Chemistry 12L or 22L. Instructor: Grunwald or Johnsen. One course.

152. Molecular Plant Physiology. NS Principal physiological processes of plants, including respiration, photosynthesis, water relations, and factors associated with plant morphogenesis. Prerequisites: Biology 25L and Chemistry 12L or 22L; organic chemistry is desirable. Instructors: Pei, Siedow, and Sun. One course.

154. Fundamentals of Neuroscience. NS, STS One course. C-L: see Psychology 135; also C-L: Neurobiology 154, Neurosciences

155L. Biochemistry of Marine Animals. NS, R, W The molecular basis of behavioral and physiological responses of organisms. Evolution of molecular endocrinology and signal transduction pathways. Focus on the theory and research methodology used to study the evolution of molecular signaling and control systems. Research projects using local invertebrates to study behavioral and physiological responses to environmental signals. Field trips include night walks in local environments and marine fossil expeditions to local strip mines involved with production of fertilizer, food additives, cement, and gravel. One course (fall); one and one-half courses (summer). (Given at Beaufort.) Prerequisites: Biology 25L; and Chemistry 21L and 22L. Instructor: Rittschof. Variable credit. C-L: Marine Sciences

156L. Sensory Physiology and Behavior of Marine Animals. NS, R, W Sensory physiological principles with emphasis on visual and chemical cues. Laboratories will use behavior to measure physiological processes. (Given at Beaufort.) Prerequisites: Biology 25L and Chemistry 12L. Instructor: Rittschof. One course. C-L: Marine Sciences, Neurosciences

160. Population Ecology. NS, QS, STS Processes affecting births and deaths of organisms and the way these processes determine the distribution and abundances of populations. Animal behavioral decisions; mating; one-, two-, and many-species systems; stochastic processes; evolutionary ecology; and fundamentals of community ecology. Examples of human population dynamics, and concepts of population regulation. Human impacts on animal populations. Mathematical techniques, including matrix models, differentiation, and
differential equations, will be developed. Prerequisite: Mathematics 31 or equivalent. Not open to students having taken Biology 110L. Instructor: Wilson. One course.

166. Evolution of Animal Behavior. NS, R, STS, W How animal behavior is shaped by natural selection, historical factors, and ecological constraints. These factors considered in the context of mating systems, parental care, foraging, and other current issues in behavior. Prerequisite: Biology 25L. Instructor: Alberts, Leal, or Noor. One course.

167. Learning and Adaptive Behavior (B, C). NS One course. C-L: see Psychology 111

168. Comparative Psychology. NS One course. C-L: see Psychology 120; also C-L: Neurosciences

171. Primate Sexuality. NS, STS One course. C-L: see Biological Anthropology and Anatomy 171; also C-L: Neurosciences

174. Philosophy of Biology. CZ, NS, R, STS One course. C-L: see Philosophy 114

176AL. Marine Invertebrate Zoology. NS, R Structure, function, and development of invertebrates collected from estuarine and marine habitats. Not open to students who have taken Biology 274L. One course (fall, spring, and Summer Term II); one and one-half courses (Summer Term I). (Given at Beaufort fall, spring, and summer.) Prerequisite: Biology 25L. Instructor: Kirby-Smith. Variable credit. C-L: Environment 176AL, Marine Sciences

184L. Experimental Cell and Molecular Biology. NS, R, W Application of contemporary molecular techniques to biological problems. Questions addressed on protein-DNA binding, protein domain structure and function, differential gene expression, protein localization. Techniques include genetic transformation, gel mobility shift assay, Western blot, Northern blot, PCR, RT-PCR, microarrays, immunolocalization, DNA sequencing. Students learn to write three scientific-style papers on their experiments. Prerequisite: Biology 118 or 119. Instructor: Armaleo. One course. C-L: Neurosciences, Genetics Program

187. Evolutionary Genetics and Genomics. NS Introduction to the principles of evolutionary genetics. Genetic variation, neutral theory, natural selection, human population genetics, phylogenetic reconstruction, evolutionary genomics, and evolutionary bioinformatics. Instructor: Noor. One course.

190. Research Independent Study. R Individual research and reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to all qualified students with consent of supervising instructor and director of undergraduate studies. Instructor: Staff. Variable credit. C-L: Marine Sciences

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to all qualified students with consent of supervising instructor and director of undergraduate studies. May be repeated. Continued in Biology 297. Instructor: Staff. One course. C-L: Marine Sciences, Neurosciences

193T. Tutorial. For junior and senior majors with consent of director of undergraduate studies and supervising instructor. Instructor: Staff. One course. C-L: Marine Sciences

195. Topics in Biology. NS Occasional topics in the biological sciences. Instructor: Staff. One course.

195S. Seminar in Biology. NS Instructor: Staff. One course. C-L: Neurosciences

197T. Tutorial. For junior and senior majors with consent of director of undergraduate studies and supervising instructor. Instructor: Staff. Half course. C-L: Marine Sciences

199S. Current Research in Biology. EI, NS, STS, W Students selected for funding for independent research from the Trinity College Research Forum in Biology write and review research proposals, discuss ethical issues in the conduct of biological and biomedical
research, and present and discuss their own research projects. Consent of instructor required. Instructor: Roth. One course.

For Seniors and Graduates

204LS. Field Ecology. NS, R Ecosystem, community, and physiological ecology of temperate plants and animals through hands-on experimentation. How biological processes are affected by biotic interactions. Theory and methods reviewed through discussions; hypothesis formulation, experimental design, data acquisition and processing, and data analysis learned through field investigation. Includes several field trips, including two weekends. Prerequisites: Biology 25L, Mathematics 31. Biology 110L, 116, or other course in ecology, or consent of instructor. Instructor: Reid or Wright. One course. C-L: Environment 204LS, Marine Sciences

205LS. Experiments in Developmental and Molecular Genetics. NS, R Experimental approaches in development and genetics using animal and plant models. Laboratory training in molecular genetics, immunochemistry, microscopy, protein chemistry, and genetic screening. Experiments include immunochemical localization, in situ hybridization, polymerase chain reaction, genetic screening, embryo micromanipulation, microscopic imaging, and mutant analysis. Prerequisite: Biology 118; recommended, prior or concurrent registration in Biology 119. Instructor: Staff. One course.

207AL. Experimental Tropical Marine Ecology. NS, R Distribution and density of marine and semi-terrestrial tropical invertebrate populations; behavioral and mechanical adaptations to physical stress, competition, and predation using rapid empirical approaches and hypothesis testing. Offered only at Beaufort, with preparation for fieldwork before and analysis and presentation of projects after required one week intensive field experience on the coast of Panama. Consent of instructor required. Instructor: Rittschof. Half course.

207BL. Marine Ecology of the Pacific Coast of California. NS, STS Ecology of the rocky intertidal, kelp forest, and mud flat habitats. Introduction to marine mammals, fish and other large West Coast vertebrates. Offered only at Beaufort, with preparation for fieldwork before and analysis and presentation of projects after required one week intensive field experience on the coast of Northern California. Prerequisite: Concurrent registration in Biology 129L and consent of instructor. Instructor: Crowder. Half course.

207CL. Ocean Ecosystems. NS, STS Interaction of physical, chemical and biological processes, emphasizing processes that determine species composition and quality of plants and animals. Field work with marine organisms, especially plankton, sampling habitats from the continental shelf to the subtropical gyre. Offered only at Beaufort, with preparation for fieldwork before and analysis and presentation of projects after required one week intensive field experience at sea on an oceanographic vessel. Consent of instructor required. Instructor: Barber. Half course.

207EL. Harmony in Brittany: French Use of Marine Environments. NS, STS Intensive field experience on the coast of Brittany, including French maritime cultural heritage, regional and national coastal reserves (Le Parc naturel régional d’Armorique; Presqu’île de Crozon), shellfish aquaculture (La Tremblade), seaweed harvest (Lanildut), and tidal energy (La Rance). Offered only in Beaufort, with preparation for fieldwork before and analysis and presentation of projects after required one week intensive field experience on the coast of France over Fall Break. Prerequisites: Biology 25L and consent of instructor. Instructor: Van Dover. Half course.

208LS. Human Embryology. NS, STS The development of the mammalian embryo. Emphasis on human embryology, the origin of major human teratologies, birth defects, ethical and social issues of reproductive biology, aspects of comparative vertebrate development. The evolution of developmental patterns, and the molecular mechanisms of development. Laboratory sessions examining various vertebrate, including human embryos. Prerequisites: Biology 108L or 205L or Biological Anthropology and Anatomy 133L or
equivalent. Permission of instructor required. Instructor: Smith and Wall. One course. C-L: Biological Anthropology and Anatomy 208LS

211L. Microbial Ecology and Evolution. NS, R Survey of new advances in the field of environmental and evolutionary microbiology, based on current literature, discussion, and laboratory exercises. Topics to include bacterial phylogeny, molecular ecology, emerging infectious diseases, bacterial symbiosis, experimental evolution, evolution of drug resistance, and microbial genomics. Prerequisite: Biology 25L, 103L, 118, or consent of instructor. Instructor: Vilgalys. One course.

214. Biophysics in Cellular and Developmental Biology. NS One course. C-L: see Physics

215. Tropical Ecology. NS, STS One course. C-L: see Environment 217; also C-L: Latin American Studies


217. Ecology and Global Change. NS, R, STS Feedbacks between ecological processes and global environmental change; physiological and ecosystem ecology using a variety of sources, including the primary scientific literature. Topics include global warming, biodiversity, land-use change, ozone depletion, and the application of ecological research to policy. Prerequisite: Biology 25L or equivalent; recommended: Biology 110L or 116 or equivalent. Instructor: Jackson. One course.

218L. Barrier Island Ecology. NS, R One course. C-L: see Environment 218L; also C-L: Marine Sciences

219L. Coastal Ecosystem Processes. NS One course. C-L: Environment 224L, Marine Sciences

220L. Mycology. NS Survey of the major groups of fungi with emphasis on life history and systematics. Field and laboratory exercises. Instructor: Vilgalys. One course.


224L. Herpetology. NS, R Biology of recent amphibians and non-avian reptiles, evolutionary history, morphology, life history, physiology, behavior, and ecology. Local field trips. Prerequisites: Biology 25L or equivalent. Instructor: Leal. One course.

234S. Problems in the Philosophy of Biology. NS, STS One course. C-L: see Philosophy 234S


244. Principles of Immunology. NS, R One course. C-L: see Immunology 244

252. Marine Conservation Biology. NS Ecological effects of fishing, the major threat to marine biodiversity, examined through selected case studies. Conservation strategies and ways that science and policy can be integrated to solve real-world problems. Field trip to Hawaii required. (Taught at Beaufort.) Instructor: Read. One course.

254. Vertebrate and Invertebrate Endocrinology. NS, STS Comparative study of the major pathways of hormonal regulation from the organismal to the molecular level in vertebrate and invertebrate models. Applications of endocrinology in pharmaceuticals, cosmetics, and environmental issues. Prerequisites: Biology 25L and Chemistry 152L. A
biochemistry course recommended. (Given at Beaufort.) Instructor: Rittschof. One course. C-L: Marine Sciences

256S. Speciation. NS Experimental and phylogenetic approaches to the origin of plant and animal species. Emphasis on current literature and modern approaches to evolutionary patterns and processes. Prerequisites: basic courses in systematics and genetics. Instructor: Noor and Willis. One course.

257S. Science and Technology in Nineteenth-Century German Culture. ALP, CCI, CZ, STS One course. C-L: see German 285S

259S. The Life and Work of Darwin. NS Readings by and about Darwin and his contemporaries, especially Wallace. Darwin's "Autobiography" and Janet Browne's biography as context for readings of some of his major works and works of his contemporaries. Consent of instructor required. Instructors: Alberts and McShea. One course.

260. Cancer Genetics. NS, R Examination of the genetic changes associated with cancer. Exploration of the molecular events that transform normal cellular processes into tumor-promoting conditions. Topics include: tumor viruses, oncogenes, growth factors, signal transduction pathways, tumor suppressors, cell cycle control, apoptosis, stem cells, and metastasis. Prerequisites: Biology 118, Biology 117 or 119. Instructor: Bejsovec. One course.

267L. Biodiversity Science and Application. NS, R Processes responsible for natural biodiversity from populations to the globe. Topics include species interactions (e.g., competition, predation, parasitism), natural and human disturbance, climate change, and implications for management and conservation. Lab section involving observation and data from large-scale manipulations, such as experimental hurricanes, fire, and herbivore exclosures. Instructor: Clark and Wright. One course. C-L: Environment 257L

268L. Models for Environmental Data. NS Formulation of environmental models and applications to data. Topics include physiology, population growth, species interactions, disturbance, and ecosystem dynamics. Model development, analysis, and interpretation. Discussions focus on classical and current primary literature. Lab focuses on analysis of data using R, making use of likelihood models, bootstrapping, and Bayesian approaches. Instructor: Clark. One course. C-L: Environment 231L, Information Science and Information Studies

270S. Genetics and Evolution of Complex Traits. NS, R, STS An exploration of the evolution of genes, genomes, in the context of the mechanisms by which genes affect the traits of individuals. The role of different types of genetic analysis (quantitative genetics, Mendelian genetics, biochemical genetics, developmental genetics) in understanding the inheritance of traits. Social and medical uses and misuses of genetic and genomic information in the context of what can and cannot be deduced from genetic information. Prerequisites: Biology 118, 119, and 116, or 122, or 124. Instructor: Nijhout. One course.

271. Genomics. NS, R, STS Introduction to the field of genomics. Genomic techniques including genome sequencing, microarray analysis, proteomics, and bioinformatics; applications of genomics to understanding biological problems including biological networks, human origins, evolution; applications to medicine and agriculture. Lecture and discussion. Prerequisites: Biology 118 or consent of instructor. Instructor: Benfey or staff. One course.

272. Biogeochemistry. NS, STS Processes controlling the circulation of carbon and biochemical elements in natural ecosystems and at the global level, with emphasis on soil and surficial processes. Topics include human impact on and social consequences of greenhouse gases, ozone, and heavy metals in the environment. Prerequisite: Chemistry 12L or 22L or equivalent. Instructor: Bernhardt. One course. C-L: Earth and Ocean Sciences

274. Genomic Perspectives on Human Evolution. NS, R, STS Human evolutionary history as studied from the perspective of the genome. Nature of contemporary genomic data and how they are interpreted in the context of the fossil record, comparative anatomy,
psychology, and cultural studies. Examination of both the origin of modern humans as a distinct species and subsequent migration across the world. Emphasis on language, behavior, and disease susceptibility as traits of particular evolutionary interest. Prerequisite: Biology 118 or equivalent course. Instructor: Wray. One course. C-L: Biological Anthropology and Anatomy 274

275S. Sensory Signal Transduction. NS, R Recent progress in sensory signal transduction mediated by calcium channels and receptors. Topics include history and techniques in the study of ion channels, such as electrophysiology, calcium imaging, and cell and molecular biology; cell surface perception for external signals, including light receptors, olfactory receptors, taste receptors, hot and cold receptors, and mechanical receptors; heart and brain pacemakers; sensory channel receptor-related human diseases; and plan sensory signaling network. Instructor: Pei. One course.

278S. Genetic Basis of Behavior. NS The relationship between genotype and behavioral phenotype. Readings from the primary literature, including papers on humans, lab mice, and wild animal populations. Exploration of two philosophical topics: the question of causality in the natural world and the question of determinism in biology. Short research paper required. Instructor: Alberts. One course.

279S. Developmental Biology Colloquium. NS Lectures, seminars, and discussion of current topics in developmental biology. Prerequisites: Biology 118 and/or 119 or equivalent. Consent of instructor required. Instructor: McClay. One course.

280S. Genetic Engineering and Biotechnology. NS, STS Applications of recombinant DNA in medicine and in agriculture. Topics include diagnosis of genetic diseases, gene therapy, drugs for AIDS and cancer, DNA fingerprinting, cloning of mammals, phytoremediation, crop improvement, and pharmaceutical protein production in transgenic plants and animals. Social and environmental impacts of biotechnology. Prerequisites: Biology 118 and 119 or consent of instructor. Instructor: Sun. One course.

284. Molecular Population Genetics. NS Genetic mechanisms of evolutionary change at the DNA sequence level. Models of nucleotide and amino acid substitution; linkage disequilibrium and joint evolution of multiple loci; analysis of evolutionary processes, including neutrality, adaptive selection, and hitchhiking; hypothesis testing in molecular evolution; estimation of evolutionary parameters; case histories of molecular evolution. For graduate students and undergraduates with interests in genetics, evolution, or mathematics. Instructor: Uyenoyama. One course.

287S. Macroevolution. NS Evolutionary patterns and processes at and above the species level; species concepts, speciation, diversification, extinction, ontogeny and phylogeny, rates of evolution, and alternative explanations for adaptation and evolutionary trends. Prerequisite: Biology 25L, 26L, or other course in plant or animal diversity; recommended, Biology 116 or equivalent. Instructor: Roth. One course. C-L: Biological Anthropology and Anatomy 287S

289S. Advanced Topics in Genome Science Research. NS, QS, STS, W Exploration of current experimental and computational approaches in genomics and genetics and their applications to contemporary research questions. Formulation and design of interdisciplinary research plans with discussion of implications for biology, medicine and society. Utilizing primary scientific literature, students write critical reviews and research proposals. Prerequisite: Biology 195S (Genomes, Biology, Medicine), 118, 119 or 271, or consent of instructor. Recommended co- or prerequisite: independent study in genomics or computational biology. Instructor: Willard. One course.

292. Population Ecology. NS Explores key questions in population ecology from a theoretical perspective. Topics include demography and dynamics of structured populations, stochastic population dynamics, and life history characteristics. Prerequisites: Biology 110L or 116 and consent of instructor. Instructors: Morris and Wilson. One course.
293. Simulating Ecological and Evolutionary Systems. NS Computer programming using C within a UNIX environment applied to ecological and evolutionary problems. The relationship between simulation and analytic modeling. Knowledge of programming or work within the UNIX computer environment not expected. Consent of instructor required. Instructor: Wilson. One course.

295. Topics in Biology. NS Lecture course on selected topic. Offerings vary each semester. Instructor: Staff. One course.

295S. Special Topics Seminar. NS Seminar on a selected topic. Offerings vary each semester. Consent of instructor required. Instructor: Staff. One course. C-L: Marine Sciences

296. Topics in Biology. NS Lecture version of Biology 296S. Offerings vary each semester. Instructor: Staff. Half course.

296S. Special Topics Seminar. NS Seminar on a selected topic. Offerings vary each semester. Consent of instructor required. Instructor: Staff. Variable credit.

297. Research Independent Study. R Continuation of Biology 191. Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to juniors and seniors only with consent of supervising instructor. May be repeated. Instructor: Staff. One course. C-L: Marine Sciences

THE MAJOR

The Bachelor of Arts and the Bachelor of Science degrees are offered with a major in biology or in an individually designed interdepartmental concentration approved by the director of undergraduate studies in biology. Information may be obtained in the office of the director of undergraduate studies.

For the A.B. Degree

This degree program is the general liberal arts major program. Students contemplating a career in biological or biomedical sciences should elect the program leading to the B.S. degree. A minimum of fourteen courses is required for this major.

Prerequisites. Biology 25L and 26L (A or B), or equivalent.

Corequisites. Chemistry 21L and 22L; Mathematics 25 and 26, or equivalent.

Major Requirements. A minimum of eight full courses in at least eight course registrations in the biological sciences, not including the above prerequisites and corequisites or courses specified not for science majors; two of these courses must include related laboratory experience at the 100 level or above; one laboratory independent study course may be counted toward the laboratory requirement. The eight courses must include one core course in genetics and molecular biology (Biology 118), one core course in structure and function (chosen from a list of approved courses), and one core course in ecology and evolution (Biology 116). These courses are prerequisites to many of the advanced courses in these subject areas. The remaining courses may be elected from among courses numbered 100 or above in Biology; or from approved courses in the basic science departments of the School of Medicine; or from approved courses of a basic biological character in related departments. Six of these eight courses must be in Biology. A maximum of two independent study or tutorial courses may be counted toward the eight course minimum. At least one of these eight courses must be an advanced course at the 200 level in Biology. This requirement may not be satisfied by a first semester of an independent study, but may be satisfied by a second semester continuation of an independent study. The elective courses acceptable for a biology major with an area of concentration (see below) are defined by the requirements for that concentration.
For the B.S. Degree

This is the program in biology for students contemplating a career in biological or biomedical sciences. A minimum of sixteen courses is required for this major.

Prerequisites: Biology 25L and 26L (A or B), or equivalent.

Corequisites: Chemistry 21L and 22L, or equivalent, and Chemistry 151L: Mathematics 31 or 31L and 32 or 32L, or equivalent; Physics 51L or 53L or equivalent.

Additional corequisites may be required for professional schools or particular areas of concentration (see below).

Major Requirements. A minimum of eight full courses in at least eight course registrations in the biological sciences, not including the above prerequisites and corequisites or courses specified not for science majors; two of these courses must include related laboratory experience; one laboratory independent study course may be counted toward the laboratory requirement. The eight courses must include one core course in genetics and molecular biology (Biology 118) one core course in structure and function (chosen from a list of approved courses), and one core course in ecology and evolution (Biology 116). These courses are prerequisites to many of the advanced courses in these subject areas. The remaining courses may be elected from among courses numbered 100 or above in Biology, or from approved courses in the basic science departments of the School of Medicine, or from approved courses of a basic biological character in related departments. Six of these eight courses must be in Biology. A maximum of two independent study or tutorial courses may be counted toward the eight course minimum. At least one of these eight courses must be an advanced course at the 200 level in Biology. This requirement may not be satisfied by a first semester of an independent study, but may be satisfied by a second semester continuation of an independent study. The elective courses acceptable for a biology major with an area of concentration (see below) are defined by the requirements for that concentration.

For Areas of Concentration

Students may elect to complete requirements in specified areas of concentration. Currently available areas of concentration in the biology major are: animal behavior, biochemistry, cell and molecular biology, ecology, evolutionary biology, genetics, marine biology, neuroscience, pharmacology, and plant systematics. For information on areas of concentration see the director of undergraduate studies.

Departmental Graduation with Distinction

Biology majors who achieve excellence in both their studies and a research based thesis may apply for Graduation with Distinction in Biology. Students may apply if they have a grade point average of 3.0 or above in Biology courses, not including independent study, at the time of application. The award of distinction requires the maintenance of this grade point average and completion of an original research project, usually carried out as an independent study in biology or as an interdisciplinary study that includes biology. The application for distinction must be endorsed by the student's research supervisor. Distinction will be awarded by a three-member faculty committee based on an oral poster presentation and the written thesis. Two levels of distinction are offered in biology: Distinction and High Distinction. See the director of undergraduate studies for more details.

THE MINOR

Minor Requirements: Five courses in Biology, which may include Biology 25L or the equivalent and/or Biology 26L (A or B), but not including advanced placement credit (Biology 19); the five courses may include any course numbered 100 or above in Biology. Of these, a minimum of three courses must be at the 100 level or above in Biology. A maximum of one course from approved courses in the basic science departments of the School of Medicine or from approved courses of a basic biological character in related
departments. A maximum of one independent study or tutorial course may be counted toward the five courses.

**For Areas of Concentration**

Students may elect to complete the requirements for the minor in specified areas of concentration. Currently available areas in the biology minor are: animal behavior, cell and molecular biology, ecology, evolutionary biology, genetics, marine biology, plant systematics. Completion of the requirements for an area of concentration will be noted on the student's transcript. For more information on the courses approved for each area of concentration see the director of undergraduate study.

**Biomedical Engineering**

For courses in Biomedical Engineering, see “Biomedical Engineering (BME)” on page 584

**Canadian Studies (CANADIAN)**

Professor Moss (Colby College), *Director*; Professors Gereffi (sociology), Goodwin (economics), Kornberg (political science), O'Barr (cultural anthropology), Smith (sociology), Thompson (history), Tiryakian (sociology), Vidmar (law), and Wood (history); Associate Professor Mayer (public policy studies and political science), and Peck (history); Assistant Professors Fenn (history) and Shanahan (sociology); Professor Emeriti Cahow (history); Instructor Wittmann (geography)

A second major or a minor is available in this program.

The program in Canadian Studies seeks to provide the student with an understanding of Canada. Students may undertake the program to supplement another major, or to complete a second major in Canadian Studies, or as part of an interdepartmental concentration, or under Program II. Canadian Studies may also be an area concentration in the comparative area studies major, described elsewhere in this bulletin. See sections below on the program, the major, and the minor. The courses are described in the departmental and interdisciplinary listings.

**50. Duke-Administered Study Abroad: Special Topics in Canadian Studies.** Topics differ by section. Instructor: Staff. One course.


**100. Duke-Administered Study Abroad: Advanced Special Topics in Canadian Studies.** Topics differ by section. Instructor: Staff. One course.

**103S. Geography of Canada. CCI, SS** A regional geography of Canada; its physical features, topography, climate; the historic economic and social development of the regions; economic and cultural interactions among the regions. Instructor: Staff. One course. C-L: International Comparative Studies 151ES

**150. Special Topics in North American Issues.** Topics vary each semester. Instructor: Staff. One course.

**160S. Special Topics in Canadian Studies.** Topics vary each semester offered. Instructor: Staff. One course.

**170S. Special Topics in Québec Studies. CCI** Topics vary each semester offered. Instructor: Staff. One course.

**OTHER COURSES**

The following courses count as one course in the five required for the minor in Canadian Studies and in the ten required for the major in Canadian Studies. Independent studies may also be arranged with Canadian Studies faculty.
African and African American Studies
138S. Francophone Literature

Asian and African Languages and Literature
168S. Francophone Literature

Cultural Anthropology
110. Advertising and Society: Global Perspective

Economics
265S. International Trade
268S. Current Issues in International and Development Economics

English
120. Advertising and Society: Global Perspective

French
135. France's Cultural Legacy in the New World: Quebec
161S. Francophone Literature
169. North of the Border: The Novel in French Canada
371. Topics in Migration, Literature, Transnational Writers, and Postnational Literature

History
162S. Francophone Literature
183S. Canada from the French Settlement

International Comparative Studies
110CS. Francophone Literature
201BS. Current Issues in International and Development Economics
201E. Comparative Party Politics

Linguistics
120. Advertising and Society: Global Perspective

Political Science
203S. Politics and Media in the United States
277. Comparative Party Politics

Public Policy Studies
178. Comparative Health Care Systems

Sociology
160. Advertising and Society: Global Perspective
160D. Advertising and Society: Global Perspective
170. Mass Media
171. Comparative Health Care Systems

Visual Studies
110E. Advertising and Society: Global Perspective

THE MAJOR

Prerequisite: Canadian Studies 98.
Corequisite: Completion of another major; two years of college-level French.

Major Requirements. Ten courses with Canadian content, including Canadian Studies 98 and 184S and eight additional courses, seven of which must be at the 100 level or above. Some of the course requirements may be fulfilled by independent study or special readings courses. No more than four courses required for the first major may be counted for a Canadian Studies major. In special cases, an aboriginal or "heritage" language may be substituted for the French requirement.

THE MINOR

Requirements. Five courses with Canadian content; three must be at the 100 level or above; courses must include Interdisciplinary Canadian Studies 98 (Introduction to Canada) and 184S (Canadian Issues). Strong encouragement for equivalent of two years of college-level French.

For further information, contact the director.
Cell Biology

For courses in cell biology, see Biology and Medicine (School)—Graduate (School)
Basic Science Courses Open to Undergraduates.

Chemistry (CHEM)

Professor Warren, Chair; Associate Professor MacPhail, Associate Chair and Co-Director of Undergraduate Studies; Professor Bonk, Co-Director of Undergraduate Studies; Lecturer Roy, Associate Director of Undergraduate Studies and Supervisor of First-Year Instruction; Professors Baldwin, Beratan, Bonk, Crumbliss, McCafferty, McClendon, Ramsay-Shaw, Simon, Therien, Toone, Vo-Dinh, Warren, Widenhoefer, and Yang; Associate Professors Craig, Fitzgerald, Liu, and MacPhail; Assistant Professors Akhremitchev, Coltart, Franz, and Hong; Professors Emeriti Arnett, Chesnut, Lochmüller, McPhail, Palmer, Quin, Smith, Wells, and Wilder; Research Assistant Professors Chen, Fischer, Ke, and LaBean; Secondary Appointments: Professors Agre, Chilkoti, and Reichert; Associate Professor Oas; Assistant Professors Mukundan, Stapleton, and Zhou; Adjunct Professor Langley; Senior Lecturing Fellows Sebahar and Woerner; Instructors Box and Lyle

A major or minor is available in this department.

19. General Chemistry Credit. Pre-matriculation credit awarded on the basis of national/international examinations in chemistry such as College Board, International Baccalaureate, British Advanced Level. Depending on examination performance, placement may be for Chemistry 22L, 23L, 42L, or 151L. One course.

21L. General Chemistry. NS Emphasizes stoichiometry and atomic and molecular structure, with emphasis on applications to related fields such as biology and materials science. Laboratory work includes both qualitative and quantitative analysis. Prerequisite: one year of high school chemistry, a score of 610 on the Mathematics SAT or its equivalent, or consent of the supervisor of first-year instruction. Instructor: Staff. One course.

22L. General Chemistry. NS Emphasizes thermodynamics, chemical kinetics and equilibrium with emphasis on applications to related fields such as biology and materials science. Laboratory work includes both qualitative and quantitative analysis. Prerequisite: Chemistry 21L or consent of the supervisor of first-year instruction. Instructor: Staff. One course.

23L. Accelerated General Chemistry. NS An intensive introductory course for well-prepared students, covering in one semester the major topics of Chemistry 21L and 22L. Laboratory work includes both qualitative and quantitative analysis. Students may not receive credit for both Chemistry 22L and Chemistry 23L. Prerequisite: score of 3, 4, or 5 on the Chemistry Advanced Placement Examination or a satisfactory score on a Duke-administered chemistry placement examination. Instructors: Staff. One course.

26S. Introduction to Research in Chemistry. EI, NS, R Active participation in chemistry (or chemistry related) research group, accompanied by seminar classes covering research methodologies, case studies of ethical issues in chemistry, and communication of results of research. Prerequisite: Chemistry 21L or 23L or 41L or 19. Instructor: Staff. One course.

41L. Honors General Chemistry I. NS, STS Presents the curriculum of general chemistry in a "topics" approach: a series of discussions covering current research efforts used to illuminate the various fundamental concepts of chemistry, and the impact of such concepts on society, the growth of technology, and on the environment. Prerequisite: two years of high school chemistry, 680 on mathematics SAT, and consent of DUS. Normally followed by Chemistry 42L. Instructor: Staff. One course.

42L. Honors General Chemistry II. NS, STS Continuation of Chemistry 41L. Prerequisite: Chemistry 41L or consent of DUS. Instructor: Staff. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.
50. **Duke-Administered Study Abroad: Special Topics in Chemistry.** Topics differ by section. Instructor: Staff. One course.

83. **Chemistry, Technology, and Society.** NS, STS Science, the scientific method, and background topics from chemistry, biochemistry, and environmental chemistry that enable citizens to utilize the inductive-deductive methodology of science to better evaluate the potential benefits and risks associated with selected existing and proposed technologies. Intended primarily for nonmajors. Instructor: Staff. One course.

93S. **Special Topics in Chemistry.** Seminar on special topics in chemistry and chemistry-related areas. Content varies by semester. Instructor: Staff. One course.

100. **Duke-Administered Study Abroad: Advanced Special Topics in Chemistry.** Topics differ by section. Instructor: Staff. One course.

105S. **Special Topics In Chemistry.** Seminar on special topics in chemistry and chemistry-related areas. Content varies by semester. Consent of department required. Instructor: Staff. One course.

109. **Chemistry Outreach: Sharing Chemistry with the Community.** NS Principles of chemistry outreach with emphasis on chemical demonstrations. Activities include readings, discussion, and practice related to staging effective demonstrations, as well as structured service learning experiences in local schools and other venues. Societal issues relevant to chemistry outreach will be examined, along with assessment and pedagogical strategies. Participation in service learning is required. Prerequisites: Chemistry 21L or 23L or 19. Instructor: Lyle. One course.

110. **Chemical Information Retrieval.** NS, W Techniques for manual and on-line searching of the major sources of chemical information, and their application to writing a review article. Instructor: Staff. Half course.

117. **Inorganic Chemistry.** NS Bonding, structures, and reactions of inorganic compounds studied through physical chemical concepts. Prerequisite: Chemistry 161 or 166. Instructor: Staff. One course.

131. **Analytical Chemistry.** NS Fundamentals of qualitative and quantitative measurement with emphasis on chemometrics, quantitative spectrometry, electrochemical methods, and common separation techniques. Corequisite: Chemistry 133L. Prerequisite: Chemistry 163L or 167L. Instructor: Staff. One course.

133L. **Analytical Chemistry Laboratory.** NS Laboratory experiments designed to accompany Chemistry 131. Corequisite: Chemistry 131. Instructor: Staff. Half course.

151L. **Organic Chemistry.** NS, STS The structures and reactions of the compounds of carbon and the impact of selected organic compounds on society. Laboratory: techniques of separation, organic reactions and preparations, and systematic identification of compounds by their spectral and chemical properties. Prerequisite: Chemistry 22L, or 23L, or 42L or 19, or consent of director of undergraduate studies. Instructor: Staff. One course.

152L. **Organic Chemistry.** NS, STS Continuation of Chemistry 151L. Prerequisite: Chemistry 151L. Instructor: Staff. One course.

158. **Physical Organic Chemistry.** NS Organic reaction mechanisms including fundamental techniques and specific mechanistic classes. Prerequisites: Chemistry 152L and one semester of physical chemistry. Instructor: Staff. One course.

161. **Elements of Physical Chemistry.** NS Survey of physical chemistry including quantum chemistry, molecular structure, molecular spectroscopy, thermodynamics, and kinetics. Prerequisites: Chemistry 22L or 23L or 42L or 19, Mathematics 32L, and Physics 42L or 52L or 54L or 62L or consent of instructor. Instructor: Staff. One course.

163L. **Physical Chemistry Laboratory.** NS, W Laboratory experiments designed to accompany Chemistry 161. Includes instruction and practice in writing the laboratory notebook and formal laboratory reports. Prerequisite: (or corequisite) Chemistry 161. Instructor: Staff. Half course.
165. Physical Chemistry. NS Fundamentals of physical chemistry. Emphasizes quantum chemistry, molecular structure, and molecular spectroscopy. Chemistry 167L should be taken concurrently with Chemistry 165. Prerequisites: Chemistry 22L or 23L, or 42L or 19, Mathematics 103, and Physics 42L or 52L or 54L or 62L or consent of the instructor. Instructor: Staff. One course.

166. Physical Chemistry. NS Continuation of Chemistry 165. Fundamentals of physical chemistry. Emphasizes thermodynamics and kinetics. Chemistry 168L should be taken concurrently with Chemistry 166. Prerequisite: Chemistry 165 or consent of instructor. Instructor: Staff. One course.

167L. Physical Chemistry Laboratory. NS, W Laboratory experiments designed to accompany Chemistry 165. Includes instruction and practice in writing the laboratory notebook and formal laboratory reports. Prerequisite: (or corequisite) Chemistry 165. Instructor: Staff. Half course.

168L. Physical Chemistry Laboratory. NS, W Laboratory experiments designed to accompany Chemistry 166. Prerequisite: (or corequisite). Chemistry 166 or consent of instructor. Instructor: Staff. Half course.

176. Biophysical Chemistry. NS The physical chemical principles of and experimental methods employed in the study of biological macromolecules. Students may not receive credit for both Chemistry 176 and 196S. Prerequisite: Chemistry 161 or 165, or Biochemistry 227 (or Chemistry 175) or consent of instructor. Instructor: Staff. One course.

180L. Advanced Laboratory Techniques. NS Synthesis of less common substances by techniques such as high or low pressure, high or low temperature, and/or inert atmospheres. Characterization of products from measurements such as electrical conductance, optical rotation, ultraviolet-visible spectra, infrared spectra, and/or mass spectra. Prerequisite: (or corequisite) Chemistry 117. Instructor: Staff. Half course.

191A. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. Half course.

191B. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


197. Introduction to Research Independent Study. NS Includes research methodology, retrieval techniques for, and use of, the chemical literature, safety in the research laboratory, and the ethical conduct of research. Co-requisite: registration for a first course in research independent study in chemistry (191B) or a related area. Lecture/discussion. Pass/fail grading only. Half course.


For Seniors and Graduates

275. Advanced Studies. NS (1) Analytical chemistry, (2) inorganic chemistry, (3) organic chemistry, and (4) physical chemistry. Open to especially well-prepared undergraduates by consent of director of undergraduate studies. Instructor: Staff. One course.

276. Advanced Studies. NS Same as Chemistry 275, except carries only half course credit. Instructor: Staff. Half course.

For the A.B. Degree

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19. Mathematics 31L, 32L (or 41); Physics 41L, 42L or 51L, 52L (or 53L, 54L or 61L, 62L).

Major Requirements. Chemistry 131 and 133L, 151L, 152L, 161 (or 165, 166) and 163L (or 167L) plus one of the following three course options:

1. Three of the following: Chemistry 117, 157, 158, 166, 176, 195S, 196S, 198S, Biochemistry 227, 228.
2. One of the following: Chemistry 117, 157, 158, 166, 176, Biochemistry 227, plus Chemistry 191B and 192 or the equivalent in a natural science, mathematics, engineering, or a basic science department in the School of Medicine.
3. One of the following:
   a. Physics emphasis. Chemistry 166 (or 176) plus two of the following: Physics 143L, Physics 181, Physics 182.
   b. Mathematics emphasis. Chemistry 166 (or 176) plus either of the following pairs of courses: Mathematics 104 and Mathematics 131, or Mathematics 107 and Mathematics 108.
   c. Biology emphasis. Biochemistry 227 plus two of the following: Biology 118, Biology 119, Biology 151L, Biology 152, Biology 184L, Biology 185L, Biology 244.

In certain cases, substitutions may be made for courses outside the chemistry department with consent of the director of undergraduate studies.

Recommendations. Computer Science 6 or Engineering 51, Mathematics 103 (for options one and two), and Chemistry 166 (or 176). Students planning graduate study are advised to take these recommended courses and to consult with advisors regarding appropriate additional courses.

For the B.S. Degree

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19. Mathematics 31, 32 (or 31L, 32L or 41); Mathematics 103; and Physics 41L, 42L or 51L, 52L (or 53L, 54L or 61L, 62L).

Major Requirements. Chemistry 117, 131, 133L, 151L, 152L, 165, 166, 167L, 168L, 180L, plus three additional courses selected according to one of the following four options. Note that only options one and two are certified by the American Chemical Society.

Option One. Certified by the American Chemical Society.

Biochemistry 227. Plus two courses of independent study: Chemistry 191B, 192, or two approved independent study courses in a science department in Trinity College, the Medical School, the Nicholas School of the Environment and Earth Sciences, or the Pratt School of Engineering.
Option Two. Certified by the American Chemical Society.

Biochemistry 227. Plus one of the following: Chemistry 158, 176, 195S, 275 or 276. Plus one course of independent study: Chemistry 191B or an approved independent study course in a science department in Trinity College, the Medical School, the Nicholas School of the Environment and Earth Sciences, or the Pratt School of Engineering.

Option Three. Not certified by the American Chemical Society.

One of the following: Chemistry 158, 176, 195S, 275 or 276. Plus two courses of independent study: Chemistry 191B, 192, or two approved independent study courses in a science department in Trinity College, the Medical School, the Nicholas School of the Environment and Earth Sciences, or the Pratt School of Engineering.

Option Four. Not certified by the American Chemical Society.

At least one of the following: Chemistry 191B or 192. Plus one (or none) of the following: Chemistry 158, 176, 195S, 275 or 276. Plus one approved advanced lecture course in a science department in Trinity College, the Medical School, the Nicholas School of the Environment and Earth Sciences, or the Pratt School of Engineering.

The Concentration in Biochemistry

In cooperation with the Department of Biochemistry in the School of Medicine, the Chemistry Department offers both an A.B. and a B.S. degree in chemistry with concentration in biochemistry. Certification of this concentration is designated on the official transcript.

For the A.B. Degree with Concentration in Biochemistry

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19; Mathematics 31 or 31L, and 32 or 32L, or equivalent, and 103; Physics 51L, 52L (or 53L, 54L or 61L, 62L); and Biology 25L.

Major Requirements. Chemistry 131/133L, 151L, 152L, 161 (or 165, 166), 163L (or 167L); Biochemistry 227, 228; plus one of the following: Chemistry 191B or Biochemistry 210.

For the B.S. Degree with Concentration in Biochemistry

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19. Mathematics 31, 32 (or 31L, 32L or 41); Physics 41L, 42L or 51L, 52L (or 53L, 54L or 61L, 62L); and Biology 25L.

Major Requirements. Chemistry 117, 131/133L, 151L, 152L, 161, (or 165*), 163L (or 167L*), 176 (or 166*); Biochemistry 227, 228; Biology 118, 119; plus one of the following: Chemistry 191B, Biology 191, or Biochemistry 210.

Recommendations. Mathematics 103; Chemistry 180L*, 192, 195S; Biology 184L, 192; advanced courses in biochemistry.

The Concentration in Pharmacology

In conjunction with the Department of Pharmacology in the Duke Medical Center, the Chemistry Department offers both an A.B. and a B.S. degree in chemistry with a Concentration in Pharmacology. Certification of the concentration is designated on the official transcript.

For the A.B. Degree with Concentration in Pharmacology

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19. Mathematics 31, 32 (or 31L, 32L or 41); Physics 41L, 42L or 51L, 52L (or 53L, 54L or 61L, 62L); and Biology 25L, Biochemistry 227.

* Majors who wish to earn a B.S. in chemistry that is certified by the American Chemical Society must include Chemistry 165, 166, 167L, 168L, 180L, 197, and Biochemistry 227. Note: Chemistry 165 has a prerequisite of Mathematics 103.
Major requirements: Chemistry 131/133L, 151L, 152L, 161 (or 165, 166), 163L (or 167L); Pharmacology 150 and 160; plus 2 semesters of independent study involving some aspect of pharmacology (Chemistry 191B, 192 or Pharmacology 297, 298).

For the B.S. Degree with Concentration in Pharmacology

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19; Mathematics 31, 32 (or 31L, 32L or 41; and Mathematics 103 for those electing Chemistry 165); Physics 41L, 42L or 51L, 52L (or 53L, 54L or 61L, 62L); Biology 25L, Biochemistry 227.

Major Requirements: Chemistry 117, 131/133L, 151L, 152L, 161 (or 165*), 163L (or 167L*), 176 (or 166*); Pharmacology 150 and 160; plus 2 semesters of independent study (Chemistry 191B, 192 or Pharmacology 297, 298).


The Concentration in Environmental Chemistry

In conjunction with the School for the Environment of Duke University, the Chemistry Department is pleased to offer both an A.B. and a B.S. degree in Chemistry with Concentration in Environmental Chemistry. Official recognition of the completion of the requirements given below will appear on the permanent transcript of a major.

For the A.B. Degree with Concentration in Environmental Chemistry

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19; Mathematics 31, 32 (or 31L, 32L or 41); Physics 53L-54L; or 61L-62L; plus Biology 25L, and Environment 160 OR CE 120L.

Major Requirements. Chemistry 131, 133L, 151L, 152L, 161/163L (or 165*/167L, 166); Plus two of the following: Environment 179, 240, 242, 243; Plus one of the following: Chemistry 191B* or Environment 191 OR CE 197

For the B.S. Degree in Chemistry with Concentration in Environmental Chemistry

Prerequisites. Chemistry 21L and 22L; or 41L and 42L; or 23L; or 19; Mathematics 31, 32 (or 31L, 32L or 41; and Mathematics 103 for those electing Chemistry 165); Physics 53L-54L; or 61L-62L; plus Biology 25L, and Environment 160 or Civil Engineering 120L.

Major Requirements. Chemistry 117, 131/133L, 151L, 152L, 161/163L, 176 (or 165/167L, 166**); Any two of the following: Environment 179, 240, 242, 243; plus one of the following: Chemistry 191B*, Environment 191 OR CE 197

Departmental Graduation with Distinction

The department offers a program for Graduation with Distinction in Chemistry. Selection for the honor by the Chemistry Department Undergraduate Awards Committee is based on fulfilling the following requirements: at least a B average in chemistry courses at the time of application and at graduation, satisfactory completion of at least two courses of research independent study in chemistry (or in an approved chemistry-related area), enrollment and participation in Chem 198 (Graduation with Distinction in Chemistry), submission of a high quality research thesis based upon the results of independent study, nomination for the honor by the research advisor, presentation of a poster on the research project, and an oral defense of the research thesis.

THE MINOR

Requirements. Chemistry 21L or 41L, or 19; any four of the following courses: Chemistry 22L or 23L or 42L; any Chemistry courses at the 100 level or above,

* The independent study project must involve some aspect of environmental chemistry.

** Majors who wish to earn a B.S. in chemistry that is certified by the American Chemical Society must include Chemistry 165, 166, 167L, 168L, 180L, 197, and Biochemistry 227. Note: Chemistry 165 has a prerequisite of Mathematics 103.
Children in Contemporary Society (CCS)

Assistant Professor Gibson-Davis, Director

A certificate, but not a major, is available in this program.

The goal of the certificate in Children in Contemporary Society is to provide undergraduates with the opportunity to engage in interdisciplinary inquiry to solve problems facing today's children and families. Because of the complexity of these problems, the certificate will allow students the opportunity to study issues by incorporating the perspectives of numerous disciplines, including psychology, sociology, public policy, economics, and education. The certificate will culminate in an empirical research seminar, in which the students will work closely with a faculty member to produce an original, scholarly research paper. Examples of topics that could be pursued with this certificate include social and economic inequalities in schooling, the pervasiveness of gang violence in high schools, or the economic costs of childhood obesity.

In order to complete the certificate, students must take six courses: the introductory course Children in Contemporary Society 150 and the capstone course Children in Contemporary Society 191, two electives, one research course, and one methods course. The research course can be Children in Contemporary Society 190S, an independent study, or completion of an honors thesis in the student’s home department. The methods course can either be Social Science Policy Research 1 (cross-listed as PUBPOL 183AS and PSY 160BS) or a methods course in the student’s home department. Both the research course and the methods course must be approved by the program director. The two electives may be drawn from a list of pre-approved electives. No more than two courses that are counted towards this certificate may also be used to satisfy the requirements of any major, minor, or other certificate program. More information is available at www.childandfamilypolicy.duke.edu/certificate.

150. Children in Contemporary Society. R, SS Major developmental stages of childhood and influences in a child’s life: parents/family life, schools, and neighborhoods and communities. Application of theory to solving complex societal problems (often involving issues of race, class, and gender). Utilizes material and methodologies from psychology, sociology, economics, and public policy. Required for the certificate program Children in Contemporary Society, but open to all undergraduate students. Instructor: Gibson-Davis or Muschkin. One course. C-L: Public Policy Studies 124

190S. Research Seminar: Children in Contemporary Society. R, SS Original research on a specific project with a faculty mentor culminating in a scholarly written project. Required for the certificate program Children in Contemporary Society. Consent of the Director of the Children in Contemporary Society certificate program required. Instructor: Gibson-Davis. One course.

191. Multidisciplinary Approaches to Contemporary Children’s Issues. R, SS An integrative, multi-disciplinary study of the psychological, social, and political factors that affect American children and families. Specific topics to be determined by students and instructor, for example, the behavioral and economic consequences of juvenile delinquency; the implications of different family structures on infants, children, and adolescents; or the civic and social responsibilities of public education. Individual and group research projects required. Capstone course required for the Children in Contemporary Society certificate program. Consent of Director of that certificate program required. Instructor: Gibson-Davis. One course.

195. Selected Children in Contemporary Society Topics. R, SS Topics vary but pertain to the development and social and economic well-being of children and their families. Interdisciplinary in nature and drawing material from disciplines such as sociology,
psychology, public policy, economics, and education. An elective course for students pursuing Children in Contemporary Society certificate. Instructor: Staff. One course.

**195S. Selected Children in Contemporary Society Seminar Topics.** R, SS Seminar version of Children in Contemporary Society 195. Instructor: Staff. One course.

**264. Advanced Children in Contemporary Society Topics.** SS Topics vary but pertain to the development and social and economic well-being of children and their families. Interdisciplinary in nature and drawing material from disciplines such as sociology, psychology, public policy, economics, and education. An elective course for students pursuing Children in Contemporary Society certificate. Instructor: Staff. One course.

**264S. Advanced Children in Contemporary Society Seminar Topics.** SS Seminar version of Children in Contemporary Society Topics 264. Instructor: Staff. One course.

**ELECTIVES**

Students will choose two electives from the following list of pre-approved courses. If a student wishes to take a course for Certificate credit that is not on the pre-approved list, then the Certificate director will decide on the appropriateness of that course on a case-by-case basis.

**Regularly Scheduled Courses**

**African and African American Studies**
- 116. Comparative Race and Ethnic Studies
- 147. Urban Education

**Economics**
- 208S. Economics of the Family

**Education**
- 112S. Children, Schools and Society
- 118. Educational Psychology
- 121S. Infancy, Early Childhood, and Educational Programs
- 125S. Unrecognized Talent: Minority Children and Gifted Education
- 137. Contemporary Issues In Education
- 147. Urban Education
- 148S. Learning to Read

**Linguistics**
- 153S. Issues in Language Development

**Psychology and Neuroscience**
- 108A. Educational Psychology
- 119B. Child Clinical Psychology
- 131. Social Development
- 137. Adolescence
- 145S. Learning to Read
- 147S. The Developing Mind and Brain: Developmental Cognitive Neuroscience
- 153S. Issues in Language Development
- 154S. Achievement Motivation
- 174S. Infancy
- 183BS. Child Observation
- 205S. Children's Peer Relations
- 206S. Pediatric Psychology

**Public Policy Studies**
- 109S. Children, Schools and Society
- 271S. Schools and Social Policy

**Sociology**
- 11. Contemporary Social Problems
- 116. Comparative Race and Ethnic Studies
- 117. Childhood in Social Perspective
- 118. Sex, Gender, and Society
- 119. Juvenile Delinquency
Majors and minors are available in this department.

The objective of classical studies is to increase knowledge and understanding of the civilizations of Greece and Rome, part of the roots of Western culture. Toward this aim, the department offers courses in three areas (Latin, Greek, and classical studies) and two majors (classical languages, classical civilization). Concentration in the languages offers students opportunities to explore at first hand the literature, history, and thought of antiquity. In the process of learning Greek and/or Latin, students will gain a deeper insight into language itself, as well as an appreciation of the problems of interpretation and the varieties of evidence upon which interpretation may be based. For students interested in history, ancient art, or archaeology, courses in classical civilization offer a means of assessing the culture and the material remains of Greece and Rome in their own rich and varied context.

Students considering careers not in classical studies or a closely related discipline will also enjoy the benefits from either major offered by the department. The experience of analyzing language, literature, artifacts and architecture, and other ancient subjects will hone their intellectual abilities well for any profession.

Courses offered at the Intercollegiate Center for Classical Studies in Rome are listed at the end of each section below.

CLASSICAL STUDIES (CLST)

11S. Greek Civilization. CCI, CZ. The culture of the ancient Greeks from the Bronze Age to Alexander the Great: art, literature, history, philosophy, and religion. Not open to students who have had, or are taking, Classical Studies 53/153. Instructor: Staff. One course.

12S. Roman Civilization. CCI, CZ. The culture of the ancient Romans from their beginnings to Constantine: art, literature, history, philosophy, and religion. Not open to students who have taken or are taking Classical Studies 54/154. Instructor: Staff. One course.
45S. Focus Program Topics in Classical and Medieval Culture. Topics in Classical and Medieval Culture. Open only to students in the Focus Program. One course.

49S. First-Year Seminar. CCI Topics in classical literature and/or art and archaeology vary each semester. Instructor: Staff. One course.

50. Duke-Administered Study Abroad: Special Topics in Classical Studies. CCI Topics in classical literature and/or art and archaeology differ by section. Instructor: Staff. One course.

85FCS. Myth, Dream, and Vision: Imaginary Worlds. ALP Introduction to ancient and medieval texts constituting the primary sources for knowledge of pre-modern mythical and imaginary worlds. How modern societies "consume" the past, rework it, and remodel it through various media--video game, film, and novel--for contemporary audiences. Open only to students in the Focus Program. Instructor: Woods. One course.

86FCS. Ancient and Modern Liberty. CCI, CZ, EI, SS One course. C-L: see Political Science 85GFCS

87FCS. The World of the Greek Theater. ALP, CCI, CZ The tragedies and comedies of the fifth-century theater as a window on Athens: the conventions and public context of performance; the plays as indicators of social values, debates, and limits; the literary consciousness of authors and audience. Open only to students in the Focus Program. Instructor: Burian. One course.

100. History of Ancient Philosophy. CCI, CZ One course. C-L: see Philosophy 100


103. Representing Women in the Classical World. ALP, CCI, CZ One course. C-L: see Visual Studies 101A

105. Ancient and Medieval Epic. ALP, CCI Reading the major epics of antiquity in translation (Gilgamesh, Homer's Iliad and Odyssey, Vergil's Aeneid) and the European Middle Ages (Beowulf, Song of Roland, Dante's Inferno), emphasizing the changing definition and concept of the hero. Instructor: González, Janan, or staff. One course.

106. Drama of Greece and Rome. ALP, CCI Reading in translation selected tragedies (Aeschylus, Sophocles, Euripides, Seneca) and comedies (Aristophanes, Menander, Plautus, Terence) with emphasis on political, social, and cultural developments, contemporary theatrical practice, and influence on later European drama. Instructor: Burian or staff. One course. C-L: Theater Studies 117, Visual Studies 108A

116S. The Pagan World of the Divine Comedy. ALP, CCI Dante's Commedia and the texts that place it in a context: the history of thirteenth-century Florence and Dante's life; his other major works (the Vita Nuova and De Monarchia); the pagan poets whom Dante incorporated into his Commedia (Vergil, Ovid, Lucan, and Statius) and the Christian theory of biblical criticism that gave St. Augustine his perspective on pagan poets. Instructor: Clay. One course. C-L: Medieval and Renaissance Studies 116S


119. Age of Augustus. CCI, CZ Augustus (63 B.C.-A.D. 14), the person, politician, and genius of a new age. His impact on contemporary historical, biographical, and literary writings, and on the architecture of his new empire, its coinage, and his own portraiture. Instructor: Staff. One course.

123. Early Greek Archaeology: From the Fall of Mycenae to the Persian Wars. ALP, CCI, CZ, W Greek material culture in its social, economic, and historical contexts, 1200 to 480 BCE. Instructor: Antonaccio. One course. C-L: Art History 123
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Instructor</th>
<th>Course Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>Greek Art and Archaeology II: Classical to Greco-Roman.</td>
<td>ALP, CCI, CZ, W</td>
<td>Antonaccio or staff</td>
<td>One course</td>
<td>C-L: Art History 124</td>
</tr>
<tr>
<td>126</td>
<td>Art and Archaeology of Ancient Athens.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Art History 125A</td>
</tr>
<tr>
<td>128</td>
<td>Art of the Roman Empire.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Art History 128</td>
</tr>
<tr>
<td>132</td>
<td>Art in the Hellenistic Age.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Art History 105</td>
</tr>
<tr>
<td>139</td>
<td>The Living Middle Ages.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Medieval and Renaissance Studies 114; also C-L: Art History 139, History 116, English 123C</td>
</tr>
<tr>
<td>139S</td>
<td>Aspects of Medieval Culture.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Medieval and Renaissance Studies 114S; also C-L: Art History 139S, History 116S, English 123CS</td>
</tr>
<tr>
<td>140</td>
<td>Roman Spectacle.</td>
<td>ALP, CCI, CZ, EI</td>
<td></td>
<td>One course</td>
<td>C-L: see Visual Studies 150</td>
</tr>
<tr>
<td>141</td>
<td>Hellenistic Architecture.</td>
<td>ALP, CCI, CZ</td>
<td></td>
<td>One course</td>
<td>C-L: see Art History 106</td>
</tr>
<tr>
<td>145</td>
<td>Rome: History of the City.</td>
<td>ALP, CCI, CZ</td>
<td>Boatwright</td>
<td>One course</td>
<td>C-L: Art History 126A, History 101F</td>
</tr>
<tr>
<td>148</td>
<td>The Ancient City.</td>
<td>CCI</td>
<td></td>
<td>One course</td>
<td>C-L: see the examination of the archaeological monuments of Rome and other Italian sites, as well as literary sources, inscriptions, and works of art. Consent required. Taught in Rome as part of the Intercollegiate Center for Classical Studies program. Students must register for both 148A and 148B. Instructor: Staff.</td>
</tr>
<tr>
<td>148A</td>
<td>Art and Archaeology.</td>
<td>ALP, CCI</td>
<td>Staff (Study Abroad)</td>
<td>One course</td>
<td></td>
</tr>
<tr>
<td>148B</td>
<td>Political, Social, and Cultural Context.</td>
<td>CCI, CZ</td>
<td>Staff (Study Abroad)</td>
<td>One course</td>
<td></td>
</tr>
<tr>
<td>149</td>
<td>Venetian Civilization and Its Mediterranean Background.</td>
<td>ALP, CCI, CZ</td>
<td>Davis</td>
<td>One course</td>
<td></td>
</tr>
<tr>
<td>151S</td>
<td>The Discovery of the Old World: Utopias, Ancient and Modern.</td>
<td>ALP, CCI, CZ, EI</td>
<td>T. Davis</td>
<td>One course</td>
<td></td>
</tr>
<tr>
<td>153</td>
<td>Greek History.</td>
<td>CCI, CZ</td>
<td>Sosin or staff</td>
<td>One course</td>
<td>C-L: History 121B</td>
</tr>
<tr>
<td>154</td>
<td>Roman History.</td>
<td>CCI, CZ, W</td>
<td></td>
<td>One course</td>
<td>C-L: see the founding of Rome by Romulus to the founding of Constantinople by Constantine; social, cultural, and political history. Not open to students who have taken or are taking Classical Studies 12S or Classical Studies 54. This course was previously taught as Classical Studies 53. Instructor: Boatwright. One course. C-L: History 121A</td>
</tr>
<tr>
<td>155</td>
<td>The Aegean Bronze Age.</td>
<td>ALP, CCI, CZ</td>
<td>Antonaccio or staff</td>
<td>One course</td>
<td>C-L: Art History 114</td>
</tr>
<tr>
<td>157D</td>
<td>Ancient Political Theory.</td>
<td>EI, SS, W</td>
<td></td>
<td>One course</td>
<td>C-L: see Political Science 150D</td>
</tr>
<tr>
<td>185S</td>
<td>Gender and Sexuality in the Ancient World.</td>
<td>ALP, CCI, CZ, R</td>
<td></td>
<td>One course</td>
<td></td>
</tr>
</tbody>
</table>

Classical Studies (CLST) 199
Emphasis on research methods of classical studies. Instructor: Janan. One course. C-L: Women's Studies 188S

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Research Independent Study. Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


203. Ancient Political Philosophy. CCI, EI, SS One course. C-L: see Political Science 223

207. Ancient Greek Religion: 1200 - 300 B.C. ALP, CCI, CZ, R Greek religion from the Bronze Age to the Hellenistic period through literary, epigraphic, and archaeological sources. Prerequisite: some background in Greek history, art, or myth. Consent of instructor required. Instructor: Antonaccio or staff. One course.

211S. Plato. CZ One course. C-L: see Philosophy 211S

217S. Aristotle. CZ One course. C-L: see Philosophy 217S

220S. Topics in Greek Art. ALP, CCI, CZ, R One course. C-L: see Art History 201S


224. The Roman Republic. CCI, CZ, R The rise of Rome, to its mastery of the Mediterranean; the political, social, and cultural consequences. Instructor: Boatwright. One course. C-L: History 263

225. The Roman Empire. CCI, CZ, R The foundation, consolidation, and transformation of Roman rule from Augustus to Diocletian. Instructor: Boatwright. One course. C-L: History 264

226. Late Antiquity. CCI, CZ, R The institutional, intellectual, religious, and social transformation of the late Roman Empire. Instructor: Boatwright. One course. C-L: History 266

228. The Legacy of Greece and Rome. ALP, CCI, CZ The reception of classical antiquity—its literature, art and architecture—in subsequent ages, from the early medieval period to the present day. Instructor: Woods. One course. C-L: Medieval and Renaissance Studies 228

231S. Greek Sculpture. ALP, CCI, CZ, R Free-standing, relief, and architectural sculpture from the Archaic period to the Hellenistic age, representing changing aesthetic, social, and political aims. Instructor: Dillon. One course. C-L: Art History 238S
232S. Greek Painting. ALP, CCI, CZ, R From the Late Bronze Age to the fourth century B.C. with emphasis on archaic and classical Athenian vase painters. Instructor: Staff. One course. C-L: Art History 237S


GREEK (GREEK)

1. Elementary Greek. FL Structure of the language (grammatical forms, syntax, vocabulary, and pronunciation); introduction to reading. Instructor: Burian or staff. One course.

2. Elementary Greek. FL Second half of Greek 1, 2. Prerequisite: Greek 1. Instructor: Burian or staff. One course.


63. Intermediate Greek. CZ, FL Readings in classical Attic prose literature. Prerequisite: Greek 2 or equivalent. Instructor: Staff. One course.


76. Advanced Intermediate Greek. CZ, FL Introduction to Athenian Drama. Prerequisite: Greek 63 or the equivalent. Instructor: Staff. One course.


100. Duke-Administered Study Abroad: Advanced Special Topics in Greek. CCI, FL Topics differ by section. Instructor: Staff. One course.


102S. Studies in Greek Literature I. ALP, CCI, CZ, FL Herodotus and Thucydides. Instructor: Staff. One course.

103S. Greek Literature II. ALP, CCI, CZ, FL The "Odyssey" and selections from Greek lyric. Instructor: González or staff. One course.

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, culminating in a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially
fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

200. Intensive Readings in Greek Literature. ALP, CCI, FL Instructor: Staff. One course.

201. Readings in Greek Literature. ALP, CCI, FL Instructor: Staff. One course.

203. Homer. ALP, CCI, FL Problems of language, structure, and interpretation in the *Iliad*; present state of Homeric scholarship and authorship. Instructor: Burian, González, or staff. One course.

205. Greek Lyric Poets. ALP, CCI, FL Fragments of the early lyric poets; selected odes of Pindar and Bacchylides. Instructor: Burian, González, or staff. One course.

207. The Dramatists. ALP, CCI, CZ, EI, FL Reading and interpretation of selected plays relating to cultural values of Ancient Greece. Instructor: Burian. One course.

209. Introduction to Hellenistic Literature. ALP, CCI, FL Readings in selected texts of the period from Alexander to Augustus, including historical narratives, documents, philosophical and scholarly treatises, drama, and poetry. Instructor: González. One course.

211. Greek Literature in the Roman Empire. ALP, CCI, FL Readings in the Second Sophistic, the novel, history, philosophy, and poetry. Instructor: Staff. One course.

222. The Historians. ALP, CCI, FL Readings and studies in the major Greek historians Herodotus, Thucydides, and Xenophon. Instructor: Sosin or staff. One course.

LATIN (LATIN)

1. Elementary Latin. FL Study of the structure of the language (i.e., forms, vocabulary, syntax, and pronunciation); selected readings in prose and poetry. Instructor: Staff. One course.

2. Elementary Latin. FL Second half of Latin 1, 2. Prerequisite: Latin 1. Instructor: Staff. One course.

63. Intermediate Latin. CZ, FL Politics and thought in the late Republic: Caesar and Cicero. Instructor: Boatwright or staff. One course.

76. Advanced Intermediate Latin. CZ, FL The culture of Augustan Rome: readings in Vergil's "Aeneid." Prerequisite: Latin 63 or equivalent. Instructor: Staff. One course.

85. Introduction to Literature. This number represents course credit for a score of 4 or 5 on one or more of the College Board Advanced Placement tests in Latin. One course.

91. Transition to Advanced Latin. CZ, FL For first-year and sophomore students who have received credit for Latin 85 and are enrolling in their first college Latin course. Literature and life in the Roman Empire: selections from the epigrams of Martial and the letters of Pliny the Younger, combined with extensive grammar review. Instructor: Staff. One course.

102S. Life in the Late Republic: Scandal and Sensuality. ALP, CCI, CZ, FL Cicero's "Pro Caelio" and poems by Catullus, and the dramatic cultural changes and explosive passions taking place on the eve of the Republic's disintegration. Instructor: Janan or staff. One course.

103S. The Age of Augustus: Retrospection and Reform. ALP, CCI, CZ, FL Readings in Livy and in Horace's "Odes" to illuminate Augustan culture's self-aware revision of the past as a blueprint for the future. Instructor: Boatwright or Janan. One course.

105S. Ovid: The Metamorphoses. ALP, CCI, FL The poem studied as narrative, as the grandest Roman anthology of myths, and as Ovid's statement on Augustanism. Instructor: Davis or Janan. One course.

106S. Roman Satire. ALP, CCI, EI, FL A survey of the genre, concentrating on Horace and Juvenal, their literary strategies and ethical arguments. Instructor: Sosin or staff. One course.
108S. Lyric Poetry. ALP, CCI, FL Readings in the works of Catullus and Horace. Instructor: Davis or Janan. One course.

111S. Latin Love Elegy I. ALP, CCI, FL Introduction to the conventions of Latin love elegy and their development in Propertius, Tibullus, and Ovid. Instructor: Davis or Janan. One course.

112S. Roman Comedy. ALP, CCI, FL Representative plays of Plautus and Terence with studies of the genre and its Greek forebears. Instructor: Staff. One course.

140S. Nero and His Time. CCI, CZ, FL, W Historical texts focusing on Nero and illuminating his age (Suetonius, Life of Nero; Tacitus, Annals 14) discussed with other readings from and about the era. Instructor: Boatwright. One course.

170. Special Topics in Latin Literature. ALP, CCI, FL Prerequisite: the completion of second-year or third-year Latin, depending on the topic. Instructor: Staff. One course.

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors; for seniors, the paper or project may partially fulfill the requirements for graduation with distinction. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

201. Readings in Latin Literature. ALP, CCI, FL Instructor: Staff. One course.

204. Epic of the Silver Age. ALP, CCI, FL Lucan to Statius. Instructor: Janan. One course.

206S. Cicero. ALP, CCI, FL Instructor: Staff. One course.

211S. Latin Love Poetry II. ALP, CCI, FL Analysis of erotic themes in the works of Propertius, Tibullus, and Ovid, plus examples of "proto-elegy" by Catullus. Close attention to the stylistics of the poems, their place in the traditions of Latin love elegy, and their relation to other phenomena (historical, political, social) of the Augustan period. Instructor: Davis or Janan. One course.

214S. The Historians. ALP, CCI, FL Investigation of the Roman concept and practice of writing history, from Cato to Ammianus Marcellinus. Readings include Sallust, Livy, and Tacitus, and comparative Greek historians (in translation). Instructor: Boatwright or staff. One course.

216S. The Roman Provincial. CCI, CZ, FL, R Latin texts and inscriptions relating to Roman "provincials" and their integration as "Romans": for example, Caesar's Gallic Wars, Tacitus, Agricola, Juvenal, inscriptions documenting grants of Roman citizenship. Instructor: Boatwright.

217S. Latin Prose Syntax and Style. CCI, FL Latin prose composition combined with analysis of the style and syntax of select Latin prose authors. Instructor: Richardson. One course.
240S. Special Topics in Latin Literature of the Middle Ages and Renaissance. Topics change each semester offered. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 239S

The following courses in Latin are offered at the Intercollegiate Center for Classical Studies in Rome, and may be taken there for Duke credit:


THE MAJOR

Students may major in classical languages and classical civilization. Those contemplating graduate study in classics or related disciplines should consider completion of three college years of one ancient language and two years of the other, or equivalents, as a minimum. They are also reminded that reading knowledge of German and French is a requirement for advanced degrees in this field.

Majors are eligible for nomination to one semester of study, typically during the junior year, at the Intercollegiate Center for Classical Studies in Rome, which Duke manages, or at the College Year in Athens or Arcadia University study program in Greece. Courses in Greek, Latin, ancient history, and archaeology taken at these institutions are counted toward major requirements. The cost of a semester at either institution is comparable to that of Duke. Financial assistance usually can be transferred, and arrangements are made through the university. For students not able to spend a semester abroad, Duke regularly offers summer programs in Greece and Italy. The department also facilitates participation in archaeological digs in Greece and Italy. For further information on opportunities for study abroad, see the section on Off Campus Opportunities in this bulletin.

Classical Languages (Greek and Latin)

Major Requirements. Minimum of ten courses, of which eight must be at the 100 level or above. Knowledge of both Greek and Latin through the second-year level (Greek 76 and Latin 76 or the equivalent) with a total of at least eight courses in Greek and/or Latin, of which six will be at or above the 100 level; two courses in classical studies at or above the 100 level, one of which will be the capstone course (Classical Studies 195S or 196S). For double majors in classical languages and classical civilization, no more than two courses in Greek and/or Latin may be counted toward both majors.

Classical Civilization (Ancient History, Culture, Literature, Archaeology)

Prerequisites. Classical Studies 11S or 53/153 and 12S or 54/154, or two courses in Greek or Latin below the 100 level.

Major Requirements. Eight classical studies courses at or above the 100 level, including the capstone course (Classical Studies 195S or 196S). Courses must be in at least three separate areas (literature, in translation or in the original language at or above the 100 level; history; philosophy; art and archaeology). For double majors in classical civilization and classical languages, no more than two courses in Greek and/or Latin may be counted toward both majors.

Departmental Graduation with Distinction

Graduation with distinction is available to majors. Eligible students have a 3.5 grade point average in the major on beginning their project. In the context of an honors research course (193 or 194) the candidate writes a major research paper. A committee of three
THE MINOR

Four minors are offered by the department, as listed below. No courses used to fulfill the requirements of one minor may be used for another, or for the majors in classical languages or classical civilization.

Classical Archaeology
Requirements. Five courses in ancient art and archaeology, at least three at the 100 level or above, and at least three in the Classical Studies Department.

Classical Civilization
Requirements. Five courses in the Classical Studies Department, at least three at the 100 level or above; the courses must be in at least two areas (literature in the original language at the 100 level or above in translation; history; philosophy; art and archaeology).

Greek
Requirements. Five courses in ancient Greek, at least three at the 100 level or above.

Latin
Requirements. Five courses in Latin, at least three at the 100 level or above.

Comparative Literature
For courses in comparative literature, see listing in this chapter under "Literature."

Computer Science (COMPSCI)
Professor Agarwal, Chair; Associate Professor of the Practice Lucic, Associate Chair; Professor of the Practice Astrachan, Director of Undergraduate Studies; Professor Chase, Director of Graduate Studies; Professors Agarwal, Chase, Donald, Edelsbrunner, Harer, Henriquez, Lebeck, Lenoir, Reif, Rose, Tomasi, and Trivedi; Associate Professors Board, Hartemink, Kedem, Parr, Sun, and Yang; Assistant Professors Babu, Conitzer, Cox, Dwyer, Maggioni, Mukherjee, Munagala, Ohler, Roy Choudhury, and Sorin; Professors Emeriti Biermann, Ellis, Gallie, Loveland, Patrick, Ramm, Starmer and Wagner; Professor of the Practice Astrachan; Associate Professors of the Practice Lucic and Rodger; Assistant Professor of the Practice Forbes; Associate Research Professor LaBean; Assistant Research Professors Furey and Pitsianis; Adjunct Professors Arge and Lombardi; Research Scientist Brady; Lecturer Duvall

A major or a minor is available in this department.

The Department of Computer Science provides courses on the concepts of computing and computers, their capabilities, and uses. In most courses students make extensive use of the available computing facilities. Students who wish to take a single introductory course, as part of their general education, usually elect either Computer Science 1, 4, or 6.

1. Principles of Computer Science. QS, STS An overview for students not intending to major in computer science. Computer programming, algorithms, symbolic and numeric computation, computer systems, basic theoretical foundations, and the effects of computer and information technology on society. Not open to students having credit for Computer Science 6 or higher. Instructors: Forbes. One course. C-L: Information Science and Information Studies

4. Programming and Problem Solving. QS Programming and problem solving in a specific domain such as robotics, virtual worlds, web programming, biology, genomics, or computer science. Students learn the basics of programming by studying problems in one application area. Instructor: Staff. One course. C-L: Information Science and Information Studies

Computer Science (COMPSCI) 205
4G. Introduction to Computational Genomics and Computer Science. QS, STS

The role of computation in prior and current biological research, both in large-scale genomics projects such as the human genome project and in basic biology and medical research. Introduction to programming possibly including scripting, CGI programming, dynamic programming, web protocols. Introduction to specific algorithms, tools, and resources for biological research including genome sequence alignment and database design and mining. Technical and social implications of genomics and genome studies made possible by advances in algorithms, computational methods, and computational models. Instructor: Astrachan or Furey. One course.

6. Program Design and Analysis I. QS

Design and implementation of programs to solve problems in computer science, engineering, and natural sciences. Object-oriented programming using Java, analysis of programs and algorithms, reading, modifying, and designing classes, data structures including arrays, sets, and maps. Intended as an introduction for majors and those interested in programming and computer science with applications in the sciences. Prerequisite: familiarity and experience with programming using variables, loops, functions, and arrays. Mathematics 31 or equivalent (may be taken concurrently). Instructor: Astrachan, Duvall, Forbes, or Rodger. One course. C-L: Information Science and Information Studies

6L. Introduction to Program Design and Analysis I. QS

Same as Computer Science 6 but also requires a lab. Instructor: Staff. One course.

6X. Honors Program Design and Analysis I. QS

Similar to Computer Science 6, but faster paced and more challenging. Examples from physical and life sciences. Instructor: Staff. One course.

18S. Introduction to Problem Solving. QS

Techniques for solving computational problems in groups and individually. Topics vary every semester the course is offered. Course may be repeated once. Consent of instructor required. Co-requisite: Enrollment in Computer Science 4 or Computer Science 6. Instructor: Rodger or staff. Half course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course. C-L: Information Science and Information Studies

72. Artificial Life, Culture, and Evolution. QS, SS, STS

One course. C-L: see Information Science and Information Studies 72; also C-L: Visual Studies 72A

82. Technical and Social Analysis of Information and the Internet. EI, QS, STS

The development of technical and social standards governing the Internet and Information Technology in General. The role of software as it relates to law, patents, intellectual property, and IETF (Internet Engineering Task Force) standards. Analysis of issues from a technical perspective with an emphasis on the role of software and the relationship of standards to social and ethical issues. Not open to students who have taken Computer Science 82s or 182s. Instructor: Astrachan, Forbes. One course.

89S. Computer Science Education Research Seminar. QS

A project-based course involving computer science education, issues on computer science curricula, and educational techniques in general. Students should have experience in teaching or tutoring Computer Science. May be repeated. Consent of instructor required. Instructor: Forbes. One course.


96. Topics in Computer Science. QS

Instructor: Staff. One course.

96S. Topics in Computer Science. QS

Seminar version of Computer Science 96, topics from various areas of computer science, changing each year. Instructor: Staff. One course.

97S. Minds and Computers: Foundations of Artificial Intelligence. QS, R

The project of Artificial Intelligence (AI) and the idea of understanding the mind/brain as a computing machine. Elementary ideas both in computational theory and in programming (for example, LISP). Examination of neural network models built to understand the workings of the brain,
and major AI projects in knowledge representation, game playing and autonomous robotics,
issues in the philosophical foundations of AI, such as the idea of Turing Test, and evaluation
of debates between AI researchers and their critics. Open only to students in the Focus
Program. Instructor: Staff. One course. C-L: Information Science and Information Studies

100. Program Design and Analysis II. QS A continuation of Computer Science 6. Object-
oriented design and programming using a language like Java emphasizing abstract data types
and their lower-level implementations. Advanced data structures including balanced trees,
hash tables, graphs. Intuitive and rigorous analysis of algorithms. Prerequisite: Computer
Science and Information Studies

100E. Program Design and Analysis II. QS Same as Computer Science 100, for students
who have taken Engineering 53. Overview of advanced data structures and analysis of
algorithms, data abstraction and abstract data types, object-oriented programming, proofs of
correctness, complexity, and computability. Instructor: Astrachan, Duvall, Forbes, or
Rodger. One course.

102. Discrete Math for Computer Science. QS Mathematical notations, logic, and proof;
linear and matrix algebra; graphs, digraphs, trees, representations, and algorithms; counting,
permutations, combinations, discrete probability, Markov models; advanced topics from
algebraic structures, geometric structures, combinatorial optimization, number theory.
Prerequisites: Mathematics 31 and 32; Computer Science 6. Instructor: Agarwal, Edelsbrun-
ner, Forbes, Reif, or Tomasi. One course.

104. Computer Organization and Programming. QS Computer structure, machine
language, instruction execution, addressing techniques, and digital representation of data.
Computer systems organization, logic design, microprogramming, and interpreters.
Symbolic coding and assembly systems. Prerequisite: Computer Science 100 or consent of
instructor. Instructor: Kedem or Lebeck. One course.

108. Software Design and Implementation. QS Techniques for design and construction
of reliable, maintainable and useful software systems. Programming paradigms and tools for
medium to large projects: revision control, UNIX tools, performance analysis, GUI,
software engineering, testing, documentation. Prerequisite: Computer Science 100.
Instructor: Astrachan or Duvall. One course. C-L: Information Science and Information
Studies

110. Introduction to Operating Systems. QS Basic concepts and principles of
multiprogrammed operating systems. Processes, interprocess communication, CPU
scheduling, mutual exclusion, deadlocks, memory management, I/O devices, file systems,
protection mechanisms. Also taught as Electrical Engineering 153. Prerequisites: Computer
Science 100 and 104. Instructor: Chase or Cox. One course.

111. Introduction to Computer Modeling. QS Introduction to techniques for developing,
evaluating, and analyzing computational models for problems in the sciences and social
sciences. Stochastic, deterministic, discrete, and continuous models. Stability of numerical
approximations, parameter estimation, perturbation theory. Case studies from biology and
economics. Prerequisites: Math 31, 32, 100-level Statistics. Instructor: Tomasi. One course.

114. Introduction to Computer Networks. QS, R Networking and distributed systems.
Network infrastructure support for distributed applications ranging from email to web
browsing to electronic commerce. Principles underlying the design of our network
infrastructure and the challenges that lie ahead. The socket API, security, naming network
file systems, wireless networks, Internet routing, link layer protocols (such as Ethernet), and
transport protocols (TCP). Hands-on programming assignments covering issues in distribut-
ed systems and networking. Prerequisites: Computer Science 108 and 110 or equivalent.
Instructor: Staff. One course. C-L: Information Science and Information Studies

116. Introduction to Database Systems. QS, R Databases and relational database
management systems. Data modeling, database design theory, data definition and
manipulation languages, storing and indexing techniques, query processing and optimization, concurrency control and recovery, database programming interfaces. Current research issues including XML, web data management, data integration and dissemination, data mining. Hands-on programming projects and a term project. Prerequisite: Computer Science 100, recommended: Computer Science 108. Instructor: Babu or Yang. One course. C-L: Information Science and Information Studies

120L. Introduction to Switching Theory and Logic Design. QS Techniques for the analysis and design of combinational and sequential networks. Discrete mathematical systems, binary arithmetic, Boolean algebra, minimization of functions, synchronous and fundamental mode sequential circuit design, design with MSI and LSI components, and special properties of switching functions are covered. Selected laboratory work. Also taught as Electrical Engineering 151L. Instructor: Cramer or Marinos. One course.

122S. Constructing Immersive Virtual Worlds. QS One course. C-L: see Information Science and Information Studies 170S; also C-L: Visual Studies 120CS

124. Computer Graphics. QS Overview, motivation, and history; OpenGL and OpenInventor; coordinate systems and geometric transforms; drawing routines, antialiasing, supersampling; 3d object representation, spatial data structures, constructive solid geometry; hidden-surface-removal algorithms, z-buffer, A-buffer; illumination and shading models, surface details, radiosity; achromatic light, color specification, colorimetry, different color models; graphics pipeline, SGI reality engine, Pixel 5; animation, levels of detail. Prerequisites: Computer Science 108 and Mathematics 104. Instructor: Agarwal or Duvall. One course. C-L: Visual Studies 109A

130. Introduction to the Design and Analysis of Algorithms. QS Design and analysis of efficient algorithms including sorting, searching, dynamic programming, graph algorithms, fast multiplication, and others; nondeterministic algorithms and computationally hard problems. Prerequisites: Computer Science 100 and 102. Instructor: Edelsbrunner, Mungala, or Reif. One course.

140. Mathematical Foundations of Computer Science. QS An introduction to theoretical computer science including studies of abstract machines, the language hierarchy from regular sets to recursively enumerable sets, noncomputability, and complexity theory. Prerequisites: Computer Science 100 and Mathematics 103. Instructor: Reif or Rodger. One course.

148. Logic and Its Applications. QS One course. C-L: see Mathematics 188; also C-L: Philosophy 150


150. Introduction to Numerical Methods and Analysis. QS Theory, algorithms, and software that concern numerical solution of linear equations, approximation and interpolation of functions, numerical solution of nonlinear equations, and numerical solution of ordinary differential equations. Prerequisite: Computer Science 6; Mathematics 31; 32; 104 or 111. Instructor: Rose or Sun. One course.

150S. Introduction to Numerical Methods and Analysis. QS Seminar version of Computer Science 150. One course.

160. Introduction to Computational Genomics. NS, QS A computational perspective on the analysis of genomic and genome-scale information. Focus on exploration and analysis of large genomic sequences, but also attention to issues in structural and functional genomics. Topics include genome sequence assembly, local and global alignment, gene and motif finding, protein threading and folding, and the clustering and classification of genes and tissues using gene expression data. Students to learn computational approaches to
genomics as well as to develop practical experience with handling, analyzing, and visualizing information at a genome-scale. Instructor: Hartemink. One course.

170. Introduction to Artificial Intelligence. QS Algorithms and representations used in artificial intelligence. Introduction and implementation of algorithms for search, planning, decision, theory, logic, Bayesian networks, robotics and machine learning. Prerequisite: Computer Science 100. Instructor: Parr. One course. C-L: Information Science and Information Studies

173. Computational Microeconomics. QS Use of computational techniques to operationalize basic concepts from economics. Expressive marketplaces: combinatorial auctions and exchanges, winner determination problem. Game theory: normal and extensive-form games, equilibrium notions, computing equilibria. Mechanism design: auction theory, automated mechanism design. Prerequisites: 100-level Statistics and 100-level Mathematics or consent of instructor. Instructor: Conitzer. One course.

181S. Computer Science Seminar. QS, R, W In-depth exploration of specific areas in computer science. The methods of critical inquiry and scholarly research reinforced with regular written analysis, seminar-style presentations and collaborative research projects. Prerequisites: Computer Science 100 and 104. Instructor: Staff. One course. C-L: Markets and Management Studies, Information Science and Information Studies

182S. Technical and Social Analysis of Information and the Internet. QS, R, SS, STS, W Technical version of Computer Science 82S. Requires a significant technical project. The development of technical and social standards governing the Internet and information technology in general. The role of software as it relates to law, patents, intellectual property, and IETF (Internet Engineering Task Force) standards. Written analysis of issues from a technical perspective with an emphasis on the role of software and on how standards relate to social and ethical issues. Meets as a seminar with an additional weekly meeting to accommodate guest lectures. Not open to students who have taken Computer Science 82S. Prerequisites: Computer Science 108 and recommended Computer Science 116. Instructor: Astrachan and Forbes. One course. C-L: Information Science and Information Studies

189S. Computer Science Education Research Seminar. A project-based course involving computer science education, issues on computer science curricula, and educational techniques in general. Students should have experience in teaching or tutoring Computer Science. May be repeated. Consent of Instructor required. Half Course. Instructor: Staff. Half course.


191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper, project, or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


193. Independent Study. Individual work in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper, project, or written report covering a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195. Computer Science Internship. Open to computer science majors engaged in industrial work experience only. A faculty member will supervise a program of study related to the work experience, including a substantive paper containing significant analysis and interpretation on a computer science-related topic. Consent of director of internship programs required. Prerequisites: Computer Science 104 and 108. Instructor: Staff. One course.
196. Topics in Computer Science. QS Topics from various areas of computer science, changing each year. Prerequisite: Computer Science 100 or equivalent. Instructor: Staff. One course.

196S. Topics in Computer Science. QS Seminar version of Computer Science 196. Instructor: Staff. One course.

197. Topics in Computer Science. QS, R Topics from various areas of computer science, changing each year. Includes research intensive work exposing the student to computer science research methodology and resulting in a major document or project. Prerequisite: Computer Science 100. Instructor: Staff. One course.

For Seniors and Graduates

210. Operating Systems. QS Fundamental principles of operating system design applied to state-of-the-art computing environments (multiprocessors and distributed systems) including process management (coscheduling and load balancing), shared memory management (data migration and consistency), and distributed file systems. Instructor: Chase or Cox. One course.

212. Distributed Information Systems. Principles and techniques for sharing information reliably and efficiently in computer networks, ranging from high-speed clusters to global-scale networks (e.g., the Internet). Topics include advanced distributed file systems, distributed programming environments, replication, caching and consistency, transactional concurrency control, reliable update and recovery, and issues of scale and security for Internet information services. Prerequisites: Computer Science 110 or 210 and Computer Science 214, or consent of the instructor. Instructor: Chase. One course.


216. Advanced Database Systems. QS, R Advanced database management system design principles and techniques. Materials drawn from both classic and recent research literature. Possible topics include access methods, query processing and optimization, transaction processing distributed databases, object-oriented and object relational databases, data warehousing, data mining, web and semi-structured data, search engines. Programming projects required. Prerequisites: An introductory database course or consent of instructor. Instructor: Babu or Yang. One course. C-L: Computational Biology and Bioinformatics 233

219. Statistical Data Mining. QS One course. C-L: see Statistics and Decision Sciences 218

220. Advanced Computer Architecture I. QS, R Fundamental aspects of advanced computer architecture design and analysis. Topics include processor design, pipelining, superscalar, out-of-order execution, caches (memory hierarchies), virtual memory, storage systems, simulation techniques, technology trends and future challenges. Prerequisite: Computer Science 104 or Electrical and Computer Engineering 152 or equivalent. Instructors: Board, Kedem, Lebeck, or Sorin. One course. C-L: Electrical and Computer Engineering 252

221. Advanced Computer Architecture II. QS Parallel computer architecture design and evaluation. Design topics include parallel programming, message passing, shared memory, cache coherence, memory consistency models, symmetric multiprocessors, distributed shared memory, interconnection networks, and synchronization. Evaluation topics include modeling, simulation, and benchmarking. Prerequisite: Computer
Computer Science (COMPSCI) 211


226. Probability for Electrical and Computer Engineers. One course. C-L: see Electrical and Computer Engineering 255; also C-L: Information Science and Information Studies

230. Design and Analysis of Algorithms. QS Design and analysis of efficient algorithms. Algorithmic paradigms. Applications include sorting, searching, dynamic structures, graph algorithms, randomized algorithms. Computationally hard problems. NP completeness. Prerequisite: Computer Science 100 or equivalent. Instructor: Agarwal, Arge, or Reif. One course.

232. Approximation Algorithms. QS Cover traditional approximation algorithms with combinatorial and linear programming techniques; extended survey of cut problems and metric embeddings; embeddings, dimensionality reduction, locality sensitive hashing, and game theory. Instructor: Munagala. One course.

234. Computational Geometry. QS Models of computation and lower-bound techniques; storing and manipulating orthogonal objects; orthogonal and simplex range searching, convex hulls, planar point location, proximity problems, arrangements, linear programming and parametric search technique, probabilistic and incremental algorithms. Prerequisite: Computer Science 230 or equivalent. Instructor: Agarwal, Edelsbrunner, or Reif. One course. C-L: Computational Biology and Bioinformatics 234

235. Topics in Data Compression. QS Emphasis on the redundancies found in textual, still-frame images, video, and voice data, and how they can be effectively removed to achieve compression. The compression effects in information processing. Additional topics may include information theory, the vulnerability of compressed data to transmission errors, and the loss of information with respect to the human visual system (for image data). Available compression technologies and the existing compression standards. Prerequisites: Computer Science 130 and 208 or Computer Science 254 or Electrical Engineering 282. Instructor: Markas or staff. One course.

236. Computational Topology. QS Introduction to topology via graphs; facts about curves and surfaces; representing triangulations; discussion of simplicial complexes; emphasis on Delaunay and alpha complexes and on homology groups; computational via matrix reduction; Morse functions; PL functions; Reeb graphs; development of persistent homology; proof of stability; applications and extensions. Prerequisite: Computer Science 230. Instructor: Edelsbrunner or Harer. One course. C-L: Mathematics 264


240. Computational Complexity. QS Turing machines, undecidability, recursive function theory, complexity measures, reduction and completeness, NP, NP-Completeness, co-NP, beyond NP, relativized complexity, circuit complexity, alternation, polynomial time hierarchy, parallel and randomized computation, algebraic methods in complexity theory, communication complexity. Prerequisite: Computer Science 140 or equivalent. Instructor: Agarwal. One course.

250. Numerical Analysis. QS, R Error analysis, interpolation and spline approximation, numerical differentiation and integration, solutions of linear systems, nonlinear equations, and ordinary differential equations. Prerequisites: knowledge of an algorithmic
programming language, intermediate calculus including some differential equations, and Mathematics 104. Instructor: Rose or Sun. One course. C-L: Mathematics 221, Statistics and Decision Sciences 250

258. Introduction to Computational Science. QS Introduction to scientific computing and its applications to facilitate interdisciplinary collaborative research. Brief intro to contemporary high performance computer architectures, basic linear algebra, numerical analysis, programming languages and widely available software packages. Study high performance algorithms in finite elements, fast transforms, molecular dynamics, high dimensional optimization, computational quantum mechanics and visualization. Parallel lab sessions by experts offer further specialization. Prerequisite: programming experience in Fortran or C, calculus, numerical linear algebra or equivalent. Instructor: Staff. One course.

261. Computational Biology of Gene Regulation. One course. C-L: see Computational Biology and Bioinformatics 231

262. Computational Systems Biology. NS, QS, R Provides a systematic introduction to algorithmic and computational issues present in the analysis of biological systems. Emphasizes probabilistic approaches and machine learning methods. Explores modeling basic biological processes (e.g., transcription, splicing, localization and transport, translation, replication, cell cycle, protein complexes, evolution) from a systems biology perspective. Lectures and discussions of primary literature. Prerequisites: basic knowledge of algorithm design (Computer Science 230 or equivalent), probability and statistics (Statistics 213 or equivalent), molecular biology (Biology 118 or equivalent), and computer programming. Alternatively, consent of instructor. Instructor: Hartemink or Ohler. One course. C-L: Computational Biology and Bioinformatics 262

263. Algorithms in Structural Biology and Biophysics. NS, QS, R Introduction to algorithmic and computational issues in structural molecular biology and molecular biophysics. Emphasizes geometric algorithms, provable approximation algorithms, computational biophysics, molecular interactions, computational structural biology, proteomics, rational drug design, and protein design. Explores computational methods for discovering new pharmaceuticals, NMR and X-ray data, and protein-ligand docking. Prerequisites: basic knowledge of algorithm design (Computer Science 230 or equivalent), probability and statistics (Statistics 213 or equivalent), molecular biology (Biology 118 or equivalent), and computer programming. Alternatively, consent of instructor. Instructor: Donald. One course. C-L: Computational Biology and Bioinformatics 263, Structural Biology and Biophysics 263

264. Nonlinear Dynamics. QS, R One course. C-L: see Physics 213

270. Artificial Intelligence. QS Design and analysis of algorithms and representations for artificial intelligence problems. Formal analysis of techniques used for search, planning, decision theory, logic, Bayesian networks, robotics, and machine learning. Prerequisite: Computer Science 100 and Computer Science 130. Instructor: Parr. One course.


274. Introduction to Computer Vision. Image formation and analysis; feature computation and tracking; image motion analysis; stereo vision; image, object, and activity recognition and retrieval. Prerequisites: Mathematics 104 or 107; Mathematics 135 or Statistics 104; Computer Science 6. Instructor: Tomasi. One course.

296. Advanced Topics in Computer Science. QS Instructor: Staff. One course.

297. Advanced Topics in Computer Science. QS, R Advanced topics from various areas of computer science, changing each year. Includes research intensive work exposing the
student to computer science research methodology and resulting in a major document or project. Instructor: Staff. One course.

**THE MAJOR**

**For the A.B. Degree**

*Prerequisites.* Computer Science 6, Mathematics 31, 32.

*Major Requirements.* Computer Science 100, 104, 108, 110, and 130. Computer Science 102 or both Mathematics 135 and one of Mathematics 124 or Math 187. Two 100- or 200-level electives: one in Computer Science (not an independent study course) and one in Computer Science, Electrical Engineering, Mathematics, Statistics, or in a related area approved by the director of undergraduate studies.

For the previous curriculums, see: [http://www.cs.duke.edu/cseducation/undergrad/ba.html](http://www.cs.duke.edu/cseducation/undergrad/ba.html)

**For the B.S. Degree**

*Prerequisites.* Computer Science 6, Mathematics 31, 32, 103, 104.

*Major Requirements.* Computer Science 100, 104, 108, 110, 130, 140, and 150. Computer Science 102 or both Mathematics 135 and one of Mathematics 124 or Mathematics 187. Three 100- or 200-level electives: one in Computer Science (not an independent study course) and two in Computer Science, Electrical Engineering, Mathematics, Statistics, or in a related area approved by the director of undergraduate studies.

For the previous curriculums, see: [http://www.cs.duke.edu/cseducation/undergrad/ba.html](http://www.cs.duke.edu/cseducation/undergrad/ba.html)

**Departmental Graduation with Distinction**

A program for Graduation with Distinction in computer science is available. Candidates for a degree with distinction, high distinction, or highest distinction must apply to the director of undergraduate studies and meet the following criteria. Candidates for Graduation with Distinction must have a grade point average of 3.0 or higher in computer science courses numbered above 100. Candidates must complete a substantial project, representing at least one year's work and including at least one independent study, under the guidance of a faculty member in computer science who oversees and endorses the project. The project should represent a significant intellectual endeavor including the writing of a report. A presentation of the project must be made to a committee of three faculty members, two of whom will normally be from computer science although for interdisciplinary projects this restriction can be relaxed. Graduation with high or highest distinction is awarded at the discretion of the faculty committee in consultation with the director of undergraduate studies. Graduation with high or highest distinction is typically awarded for projects that are of publishable quality. In addition, candidates for a degree with high or highest distinction should have a grade point average of 3.5 or higher in those computer science courses related to the area of research; these courses must include at least one course at the 200 level.

**THE MINOR**

**Computer Science**

Five courses in computer science (including the prerequisite), at least four of which must be at the 100 level or above.

*Prerequisites.* Computer Science 100E, or both Computer Science 6 and Computer Science 100.

*Requirements.* Computer Science 104; additional courses from the following: Computer Science 108, 110, 130, 150, 170, or any 200-level course.
Computational Biology and Bioinformatics

**Prerequisites.** Mathematics 31, 32, and 100-level statistics course.

**Requirements.** Five courses at the 100 level (not including the prerequisites); three from Computer Science and two from Biology, as follows: Computer Science 111, Computer Science 160, Biology 118; one biology course from the following: 119, 124, 184L, 205L, 237, 238, 270S, 271 or as approved by the director of undergraduate studies in computer science in consultation with the director of undergraduate studies in biology; one computer science course from the following: 100/100E, 150, 170, or any 200-level computer science course, or as approved by the director of undergraduate studies in computer science, e.g., an independent study in an area related to bioinformatics or computational biology.

**INTERNSHIP PROGRAM**

The Computer Science Internship Program (CSIP) provides undergraduate computer science majors the opportunity to apply knowledge gained in the classroom to a job, and to build on this knowledge upon their return. The internship period is a two-semester leave consisting of one summer plus the spring semester before or the fall semester following. This period can be extended by one additional semester. One credit can be earned in the semester following the internship period through the independent study course Computer Science 195.

To participate in the CSIP program, students must take Computer Science 104 and 108, and declare computer science as their first major. An application for the CSIP program should be completed at the beginning of the semester prior to the internship period to allow time for interviewing with companies. Approval for Computer Science 195 must be obtained before the internship begins, and a faculty mentor associated with this course must be designated at this time. For further information, contact the director of the Internship Program, Department of Computer Science.

**Cultural Anthropology (CULANTH)**

Associate Professor Baker, Chair; Associate Professor Nelson, Director of Undergraduate Studies; Professors Allison, O'Barr, Silverblatt, and Starn; Associate Professors Baker, Ewing, Litzinger, Meintjes, Nelson, and Piot; Assistant Professor Davis, Makhulu, and Stein; Professors Emeriti Apte, Friedl, and Quinn; Secondary Appointments: Professors Andrews (Slavic languages), Butters (English), Mignolo (romance studies), and Reddy (history); Associate Professor Tetel (English) and Wilson (Women's Studies); Assistant Professors Holsey (African and African American Studies); Adjunct Assistant Professor Thompson (documentary studies)

A major or minor is available in this department.

Cultural anthropology is a comparative discipline that studies the world's peoples and cultures. It extends perspectives developed from anthropology's initial encounter with the "primitive" world to studies of complex societies including rural and urban segments of the Global South and contemporary industrial countries, with an emphasis on power, identity, and social justice.

Cultural anthropologists at Duke concentrate on political economy, culture, ideology, history, mass media, and discourse, and the relations among them. These concerns lead them to such specific research and teaching interests as: colonialism and state formation; the politics of representation and interpretation; histories of race and racism; popular culture, music, film, and advertising; the bases of ideological persuasion and resistance; gender ideology; language use in institutional contexts; class formation and political consciousness; war, peace-making, and human rights, and the creation and use of ethnic and national identities. The department also offers courses that introduce the various traditional subfields and methods of cultural anthropology, and other, integrative courses on world areas. Faculty draw on their fieldwork in various geographic areas, with special strengths in Africa and
the African diaspora, Latin America, Middle East, Japan, China, and the United States. Students without prerequisites for a course may ask the instructor for admission.

20S. Studies in Special Topics. SS Opportunities for first-year students to engage with a specific issue in cultural anthropology, with emphasis on student writing. Topics vary each semester offered. Instructor: Staff. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


80FCS. Special Topics in Focus. Selected topics vary each semester. Open only to students in the Focus Program. Instructor consent required. Instructor: Staff. One course.

81FCS. Muslim World: Transformations and Continuities. CCI, CZ, SS, W The diversity of social practices within the community of Islam. Particular emphasis on gender relations, diaspora communities, religious movements, and social change. Open only to participants in Focus. Instructor: Ewing. One course.

94. Introduction to Cultural Anthropology. CCI, CZ, SS Theoretical approaches to analyzing cultural beliefs and practices cross-culturally; application of specific approaches to case material from present and/or past cultures. Instructor: Staff. One course. C-L: International Comparative Studies 90B

94D. Introduction to Cultural Anthropology. CCI, CZ, SS Same as Cultural Anthropology 94 except instruction is provided in lecture and discussion group each week. Instructor: Staff. One course. C-L: International Comparative Studies

100. Duke-Administered Study Abroad: Special Topics in Cultural Anthropology. CCI Topics differ by section. Instructor: Staff. One course.

101. Introduction to the Civilizations of Southern Asia. CCI, CZ One course. C-L: see Asian and African Languages and Literature 160; also C-L: History 193, Religion 144, International Comparative Studies

102S. Introduction to Theoretical Linguistics. R, SS One course. C-L: see Linguistics 104S; also C-L: English 113S

103A. Alcohol and Culture. CCI, EI, SS Examination of cultural and social dimensions of alcohol use cross-culturally, with special attention to ethical issues surrounding control of alcohol use, frameworks for judging "abuse," and the political and social agendas of researchers and caregivers in a range of societies. Local field research (on and off campus). Instructor: Ewing. One course.


104D. Anthropology and Film. SS Same as Cultural Anthropology 104 except instruction is provided in lecture and discussion group each week. Instructor: Litzinger. One course. C-L: Film/Video/Digital

106. Life in America: Identity and Everyday Experience. CCI, CZ, SS How American culture shapes the everyday lives of people in the United States. Focus on two themes: cultural differences as well as similarities within and between ethnic groups, and the impact of history, large institutions, and global relations on all Americans. Instructor: Baker. One course. C-L: International Comparative Studies 151A

107. Introduction to Linguistics. CCI, SS One course. C-L: see Linguistics 101; also C-L: English 111, International Comparative Studies

108. Fantasy, Mass Media, and Popular Culture. CCI, R, SS A cross-cultural study of how images and stories that are mass produced affect the world view, identities, and desires

109. Anthropology and the Motion Picture. ALP, CCI, CZ Study of the representation of non-US cultures in the genre of major motion pictures (as opposed to ethnographic film). Focus will be on films about Kenya, Italy, and the South Pacific. Examination of motives for foreign travel and experiences of living abroad as depicted in films. Consideration of how other cultures are romanticized and orientalized in movies. Films about each of the cases to be screened. Discussions focus on critical film reviews, issues of anthropological theory and the theory of representation, as well as students’ own insights. Instructor: O'Barr. One course. C-L: Visual Studies 110C


110. Advertising and Society: Global Perspective. CCI, SS History and development of commercial advertising; advertising as a reflector and/or creator of social and cultural values; advertisements as cultural myths; effects on children, women, and ethnic minorities; advertising and language; relation to political and economic structure; and advertising and world culture. Emphasis on American society complemented by case studies of advertising in Canada, Japan, Mexico, Russia, Western Europe, and selected other countries. Instructor: O'Barr. One course. C-L: English 120, Sociology 160, Linguistics 120, Visual Studies 110E, Markets and Management Studies, Policy Journalism and Media, Women's Studies, Canadian Studies, International Comparative Studies, Film/Video/Digital

110D. Advertising and Society: Global Perspective. CCI, SS Same as Cultural Anthropology 110 except instruction is provided in lecture and discussion group each week. Instructor: O'Barr. One course. C-L: Sociology 160D, English 120D, Linguistics 120D, Markets and Management Studies

111. Anthropology of Law. CCI, SS Comparative approach to jurisprudence and legal practice, dispute resolution, law-making institutions and processes, and the relation of law to politics, culture, and values. Instructor: O'Barr. One course.

112. Current Topics in Linguistics. SS Advanced study of an area of linguistics or grammar. Instructor: Staff. One course.

113. Gender and Culture. CCI, SS Explanation of differing beliefs about gender cross-culturally, by comparison with dominant themes about gender in our own cultural history and contemporary ideological struggles. Instructor: Allison or Silverblatt. One course. C-L: International Comparative Studies 101E, Women's Studies 117, Study of Sexualities, Women's Studies

114. Languages of the World. CCI, SS One course. C-L: see Linguistics 102; also C-L: English 114, Russian 117, International Comparative Studies 102E

116S. Advertising and Masculinity. CCI, SS Gender representations in advertising, focusing on masculinity. Consideration also given to representations of femininity in advertising, to the nature and complexity of gender, and to the history and place of advertising in society and culture. Case materials drawn primarily from contemporary American advertising, with examples from other time periods and other national advertising traditions. Consent of instructor required. Instructor: O'Barr. One course. C-L: Visual Studies 110FS, Markets and Management Studies, Policy Journalism and Media, Women's Studies, Film/Video/Digital

117. Global Culture. CCI, SS Globalization examined through some of its dominant cultural forms—the marketing of pop music, the globalization of TV culture, the spread of markets and commodities, the export of political ideologies. Special focus given to the way in which these forms both affect and are transformed by local cultures in Africa, South Asia,

120A. The Cognitive Science of Religion & Morality. One course. C-L: see Philosophy 132; also C-L: International Comparative Studies 102G, Religion 161U, Turkish 133

120B. Thinking About God: The Nature of Religious Belief at the Crossroads of Judaism, Christianity, & Islam. CCI, CZ, EI One course. C-L: see Philosophy 135; also C-L: Religion 161V, International Comparative Studies 102F, Turkish 136

121. Culture and Politics in China. CCI, CZ, SS Introduction to the study of contemporary China, including Taiwan and the Chinese Diaspora. Key themes include family and kinship, sex and gender, regional diversity, ethnic minority relations, the politics of modernity, revolution, and reform, and the representation of Chinese identity through popular media, film, and travel. Instructor: Litzinger. One course. C-L: International Comparative Studies

122. Culture and Politics in Africa. CCI, CZ, SS One course. C-L: see African and African American Studies 122; also C-L: Visual Studies 104B, International Comparative Studies


122B. Africa and the Slave Trade. CCI, EI, SS One course. C-L: see African and African American Studies 138S

125. Comparative Approaches to Global Issues (B, D). CCI, CZ, SS One course. C-L: see International Comparative Studies 125; also C-L: History 137, Political Science 125, Religion 183, Sociology 125, Global Health, Global Health


128. Culture and Politics in Latin America. CCI, CZ, EI, SS Key themes in Latin American societies, including art, literature, history, violence and human rights, economic development, and rebellion and revolution. Instructor: Nelson or Starn. One course. C-L: International Comparative Studies 130A, Documentary Studies

129A. West African Rooltholds in Dance. ALP, CCI One course. C-L: see Dance 110A; also C-L: African and African American Studies 110A, Asian and African Languages and Literature 110A, Religion 161A


132. Representing the Middle East. CCI, CZ, SS Diverse representations of the Middle East by communities inside and outside the region. Travelogues, films, photography, literature, newspapers/media and memoir from the late nineteenth-century Ottoman context to the modern Middle East. Readings on identity, orientalism, violence, gender, and (post) colonialism. Instructors: Goknar and Stein. One course. C-L: Asian and African Languages and Literature 132, History 131B, Turkish 132, International Comparative Studies 141B, Visual Studies 110H, Islamic Studies

133S. African Mbira Music: An Experiential Learning Class. ALP, CCI, CZ One course. C-L: see Music 133S; also C-L: African and African American Studies 131S

135. Muslims in the West. CCI, CZ, SS The varieties of Muslim experience in Europe and North America, with particular attention to local debates and controversies focused on Muslims, especially post 9-11. How the various situations of Muslim minorities can contribute to anthropological understandings of identity, ethnicity, and diaspora. How Muslim practices can affect Western common, unexamined understandings of religion, secularism, and the nature of human rights. Includes visits to local mosques. Instructor: Ewing. One course. C-L: Religion 161T

135S. What's Lost in Translation? Latin American Theater in English. ALP, CCI, CZ One course. C-L: see Spanish 129S; also C-L: Theater Studies 127S, International Comparative Studies 132S

136. Introduction to African Studies. ALP, CCI, CZ One course. C-L: see African and African American Studies 107; also C-L: English 180, History 115C, Political Science 174


139. Marxism and Society. SS One course. C-L: see Literature 181A; also C-L: Education 139, History 186, Sociology 139, International Comparative Studies

140AS. Brazilian Popular Culture. ALP, CCI, CZ, FL One course. C-L: see Portuguese 140S; also C-L: African and African American Studies 140S, Visual Studies 126BS

141. Self and Society. CCI, SS The nature of human social identities, the contexts in which they are shaped, and the processes by which they change. May include an optional service-learning component. Instructor: Ewing. One course. C-L: Psychology 113A, Women's Studies

144. The Anthropology of Race. CCI, EI, SS Human variation and the historical development of concepts of race; science and scientific racism; folk-concepts of race; and the political and economic causes of racism; ethics of racism. Instructor: Staff. One course.

145A. World Music: Aesthetic and Anthropological Approaches. ALP, CCI, CZ One course. C-L: see Music 136; also C-L: International Comparative Studies, Documentary Studies

145B. Music, Social Life, and Scenes. ALP, CCI, CZ, R, W One course. C-L: see Music 137; also C-L: Documentary Studies

147. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 146; also C-L: History 101G, Medieval and Renaissance Studies 146A, International Comparative Studies 141A, Information Science and Information Studies, Ethics

148. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 147; also C-L: History 102G, Medieval and Renaissance Studies 147A, International Comparative Studies, Ethics

149. Dance and Dance Theater of Asia. ALP, CCI, CZ One course. C-L: see Dance 149; also C-L: Theater Studies 133, Asian and African Languages and Literature 149, Religion 161C, International Comparative Studies 170C

149A. Gender in Dance and Theatre. ALP, CCI, CZ One course. C-L: see Dance 175; also C-L: Women's Studies 111, Theater Studies 132, Asian and African Languages and Literature 176, International Comparative Studies 170E

149B. History and Practice of the Dance and Dance-theatre of India. ALP, CCI, CZ One course. C-L: see Dance 147; also C-L: Religion 161J, Theater Studies 134, Asian and African Languages and Literature 154

149C. Dance and Religion in Asia and Africa. ALP, CCI, CZ One course. C-L: see Dance 158; also C-L: Asian and African Languages and Literature 136, Religion 161N, African and African American Studies 158, International Comparative Studies 102A
150. Religions of the African Diaspora. CCI, CZ, SS One course. C-L: see African and African American Studies 150; also C-L: Religion 160, International Comparative Studies

152. The Turks: From Ottoman Empire to European Union. ALP, CCI, CZ, R One course. C-L: see Turkish 135; also C-L: Religion 161F, History 141A, Islamic Studies

153. Magical Modernities. CCI, SS One course. C-L: see African and African American Studies 153; also C-L: International Comparative Studies 111

154D. The History of Emotions. CCI, CZ, R, W One course. C-L: see History 154CD

155. Palestine, Israel, Arab-Israeli Conflict. CCI, EI, SS Introduction to Israeli and Palestinian culture, politics, and society and the central historical events of the Israel/Palestinian conflict. From early Zionist settlement in Palestine in the late nineteenth century and concluding with the 'Peace Process' of the 1990s, the second Palestinian uprising (Intifada), and the Israeli military reoccupation of the Palestinian territories. Ethics of both the Israeli occupation and the Palestinian resistance struggles against occupation. Instructor: Stein. One course. C-L: Asian and African Languages and Literature 159, Jewish Studies 155, Islamic Studies

160D. The History of Romantic Love. ALP, CCI, CZ, EI, W One course. C-L: see History 160D

161. Contemporary Israeli Cinema. ALP, CCI, EI One course. C-L: see Asian and African Languages and Literature 161; also C-L: Film/Video/Digital 111H, Literature 112M, Jewish Studies 140, Women's Studies 151


162AS. Documenting Religion. CCI, CZ One course. C-L: see Documentary Studies 168S; also C-L: Religion 161QS, Visual Studies 103GS

162S. Farmworkers in North Carolina: Roots of Poverty, Roots of Change. CCI, SS One course. C-L: see Documentary Studies 162S

163. Themes in Chinese Culture and History. CCI, CZ, SS An interdisciplinary approach to explore political, social, and cultural issues, both historical and contemporary, in China. (Taught in China) Instructor: Staff. One course. C-L: History 163G, Political Science 100G, International Comparative Studies

163A. Directed Study on Contemporary China. FL, R One course. C-L: see Chinese 193; also C-L: Political Science 100GA

164S. The Anthropology of Hinduism: From Encounter to Engagement. ALP, CCI, CZ, R One course. C-L: see Religion 164S; also C-L: Documentary Studies

165. Psychological Anthropology (C, D, P). SS The influence of society on human personality and cognition. Theoretical and ethnographic studies used to explore topics that may include gender, sexuality, emotions, parent-child interaction, the effect of language on thought, and the universality of the 'self.' Instructor: Ewing or Quinn. One course. C-L: Psychology 113B, Early Childhood Education

166. Cross-Cultural Perspectives on Development: A View from Japan (C, D). CCI, SS One course. C-L: see Psychology 132B; also C-L: International Comparative Studies 101G


174. Gender and Language. CCI, R, SS One course. C-L: see Russian 174; also C-L: English 115, Women's Studies 174, Linguistics 174
175. African American Intellectual History, Twentieth Century. CCI, CZ, W Ideas about race, culture, and identity still shape strategies for African American empowerment and securing the ideals of democracy in the United States. "Classic" texts from each decade of the twentieth century. Explore the location of the authors' work within its historical and political contexts. Attention given to the texture of (debates within) the African American intellectual community. Instructor: Baker. One course. C-L: African and African American Studies 178, History 176B

179S. Visual Cultures of Medicine. ALP, STS One course. C-L: see Visual Studies 184S; also C-L: Information Science and Information Studies 179S

180. Current Issues in Anthropology. Selected topics in methodology, theory, or area. Instructor: Staff. One course.

180S. Current Issues in Anthropology. Same as Cultural Anthropology 180 except instruction is provided in seminar format. Instructor: Staff. One course.

182. Contemporary European Issues. CCI, CZ, FL One course. C-L: see Spanish 133S; also C-L: International Comparative Studies

183. Anthropology of Sports. CCI, CZ, SS The role of sports in different cultures in the contemporary world. Dynamics of race, gender, sexuality, fantasy and desire, mythmaking and the culture of celebrity, commercial and mass media. Instructor: Starn. One course.

186A. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. With consent of instructor and director of undergraduate studies. One course. Instructor: Staff. One course.

186B. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. With consent of instructor and director of undergraduate studies. Instructor: Staff. One course.


191AS. The Middle East in Popular Culture. CCI, CZ, SS Popular culture in the Middle East and images of the Middle East in United States' popular culture, covering a variety of cultural forms, including film, music, and comic books. How cultural forms relate to political and historical processes. Wars and political conflicts; gender, race, sexuality, and ethnicity. Instructor: Stein. One course. C-L: Asian and African Languages and Literature 158S, Literature 163MS


191ES. Global Environmentalism and the Politics of Nature. CCI, CZ, SS, STS Exploration of several themes: how local, national, and transnational organizations manage the environment, discuss it, study it, protect and defend it; who speaks for nature and to what ends; the differences between capitalist and socialist approaches to the environment; how relations among natures, nations, social movements, individuals, and institutions have changed over time. Case studies from Africa, East and Southeast Asia, India, Latin America, and the United States; study of new theoretical writing on the relationship between humans,
technology, capital, and nature. Instructor: Litzinger. One course. C-L: Information Science and Information Studies

191FS. The Inca Empire and Colonial Legacies. CCI, CZ, SS Focus on the history of the Inca empire, its complex economic organization, ecologically sensitive use of environmental resources, sophisticated political and religious structures, and magnificent architecture and material culture. How the empire's descendents accommodated and challenged the forces of Spanish colonialism. Instructor: Silverblatt. One course. C-L: History 179BS

191H. The African Diaspora. CCI, CZ, SS One course. C-L: see African and African American Studies 192H; also C-L: International Comparative Studies

191J. Gender and Sexuality in Latin America. CCI, CZ, SS Gender and sexuality as strands within complex fabrics of identification. Anthropological case studies, including ethnography, film, and theoretical analyses, drawn from Latin America; the possibility of specific gender formations in that geographical region. Relations among men, women, "cochones," "machos," "virgenes," Malinches, "mestizos," "mujeres Mayas," "travestis," revolutionaries, gringos and gringas, throughout the whole continent of the Americas. How gender and sexuality affect and are affected by other forms of identification such as race and ethnicity, class, colonialism, nationalism, and globalization. The role of stereotypes. Instructor: Nelson. One course. C-L: Women's Studies 189, International Comparative Studies 130B, Latin American Studies, Study of Sexualities

191N. Sex and Money. CCI, SS Sexual practices that involve transactions of money in different cultural and historical settings, including "regular" marriage practices that involve exchanges of money and goods as well as extramarital practices where one party is selling bodily acts. Examination of the ethics and politics of these exchanges questioning who benefits from them (and who not) and how to also assess other bodily transactions including prostitution and surrogacy. Reading materials on sexual practices in different cultural contexts (including Tonga, Thailand, Brazil, India, Ghana, China, Japan, Russia, Turkey, Indonesia). Comparisons made in terms of culture, religion, ethical systems, politics, and economy. Instructor: Allison. One course.

191P. Globalization and Anti-Globalization. CCI, CZ, SS The politics and process of globalization in light of the responses, ideologies, and practices of the anti-globalization movement. Focus on the interrelationship between the analysis of globalization and policy formulation on such topics as social justice, labor, migration, poverty, natural resource management, and citizenship. Case studies from the United States, Latin America, South and East Asia, Africa, and Europe. Instructor: Litzinger. One course. C-L: International Comparative Studies 101H

191QS. Travel, Gender, and Power. Nineteenth-century travel and imperialism; contemporary tourism; the relationship between leisure and power, globalization and consumption, the role of gender, sex and exploitation. Instructor: Stein. One course. C-L: Asian and African Languages and Literature 157S, Literature 132BS, Women's Studies 181S

191R. Globalizing Consumer Cultures. CCI, SS The global spread of forms of consumer culture and their local appropriations, particularly the phenomenon of a globalizing "middle-class" culture and its local variations world wide. The historic emergence of a middle class in the United States and elsewhere in the world. The way local requirements for social respectability and "normalcy" are increasingly defined by the imagined lifestyles of average citizens in so-called "first world" countries. Instructor: Fehervary. One course.

191T. Medical Anthropology. CCI, EI, SS, STS Cross cultural experiences and understanding of health and illness, the body and non-biological aspects of medicine. Culture-specific sickness (like envidia, running amok, attention deficit disorder). Class, race, and gender inflected experiences of health. Various societies' organization of health care specialists, including biomedical doctors, voudon priestesses, and shamans. Instructor: Davis. One course.

194. Fieldwork Methods: Cultural Analysis and Interpretation. EI, R, SS, W Anthropology as a discipline (a field of study) and the site where anthropologists work: the field. Combines theories of anthropological fieldwork methods with practice, including participation, observation, and interviews. Students undertake original research in a local fieldsite of their choice and produce their own mini-ethnography. This requirement may also be satisfied by taking Cultural Anthropology 100 Duke in Ghana Anthropological Field Research. Instructor: Staff. One course. C-L: Global Health

195S. Senior Seminar Distinction Program Sequence. R No credit for Cultural Anthropology 195S without satisfactory completion of Cultural Anthropology 196S. Consent of director of undergraduate studies required. Instructor: Staff. One course.

196S. Senior Seminar Distinction Program Sequence. W Continuation of Cultural Anthropology 195S, and required for credit for 195S. Consent of director of undergraduate studies required. Instructor: Staff. One course.

198S. Special Topics in Linguistics. CCI, SS Same as Linguistics 199 except instruction is provided in a seminar format. Instructor: Staff. One course.

199H. Andean Anthropology. CCI, SS Theoretical and methodological guidelines for the construction of a genuine Andean anthropology according to contemporary sociocultural rules. Taught in Bolivia. Instructor: Staff. One course.

199J. Workshop on Popular Culture. CCI, FL, SS Popular culture in Bolivia examined through documentary study and field work, especially using oral history. (Taught in Bolivia.) Instructor: Staff. One course.

For Seniors and Graduates


202. Semiotics of Culture. ALP, CCI, CZ, R One course. C-L: see Russian 202; also C-L: English 206

203S. African Modernities. CCI, SS One course. C-L: see African and African American Studies 213S; also C-L: International Comparative Studies

207S. Anthropology and History. SS Recent scholarship that combines anthropology and history, including culture history, ethnohistory, the study of mentalité, structural history, and cultural biography. The value of the concept of culture to history and the concepts of duration and event for anthropology. Prerequisite: major in history, one of the social sciences, or comparative area studies; or graduate standing. Instructor: Reddy. One course. C-L: History 210S

208S. Language Evolution and Acquisition. R, SS One course. C-L: see Linguistics 203S

213S. Linguistics and Law. SS One course. C-L: see Linguistics 213S; also C-L: English 215S

249S. Anthropology and Psychology (C, P). CCI, SS Cross-cultural approaches to the psyche, including applications of social psychology, psychoanalysis, and trans-cultural psychiatry to anthropological questions such as culturally expressed psychic conflicts and pathologies, gender and sexuality, communication, rationality, affect, and motivations. Instructor: Staff. One course. C-L: Psychology 249S

254. East Asian Cultural Studies. ALP, CCI, CZ, R One course. C-L: see Asian and African Languages and Literature 253; also C-L: International Comparative Studies

260. Modern Japanese Literature and Culture. ALP, CCI, CZ, R One course. C-L: see Asian and African Languages and Literature 262; also C-L: International Comparative Studies
264S. Millennial Capitalisms: Global Perspectives. CCI, CZ, R, SS Critical examination of the problematic of capital from the late nineteenth century until the present moment. Anthropological frameworks and related disciplinary approaches to the multiple cultural productions and lived experiences under divergent forms of capitalism in the new millennium. Focus on East Asia. Theories of capitalism, globalization and anti-globalization movements, "imaginaries" and fantasies, nature and the virtual, consumption, and disciplinary practices of the body. Instructors: Allison and Litzinger. One course. C-L: International Comparative Studies 221BS

279S. Race, Racism, and Democracy. CCI, SS, W The paradox of racial inequality in societies that articulate principles of equality, democratic freedom, and justice for all. Instructor: Baker. One course. C-L: African and African American Studies 279S

280. Selected Topics. Special topics in methodology, theory, or area. Instructor: Staff. One course.

280S. Seminar in Selected Topics. Same as Cultural Anthropology 280 except instruction provided in seminar format. Instructor: Staff. One course.

281S. Masculinities. CCI, CZ, R, SS How masculinities are constructed, performed and inhabited. Theorization of the masculine subject in sociocultural, political and psychodynamic terms within colonial and modernizing contexts. Issues of gendered citizenship. Role of scholarship and the media in constituting hegemonic, subaltern, ethnic, female, and stigmatized masculinities. Instructor: Ewing. One course. C-L: Women's Studies 281S

284S. Transnationalism and Public Culture. CCI, SS Critical examination of issues in transnational studies in anthropology and beyond. Tracking the theories of contemporary scholars of the global, and examining new multisited strategies of method, we explore the emerging ethnographic landscape of the global and the role transnational studies is playing in a revitalized anthropology of the twenty-first century. Instructor: Piot. One course.

285S. Space, Place, and Power. CCI, SS Examines relationship between space and power by studying how communities make and negotiate spaces, how identities are forged out of space, and the relationship between cultural and spatial practices. Spatial components of globalization, sexuality and sexual identity, race and gender, and the geographic and cartographic histories of imperialism. Interdisciplinary readings from disciplines of geography, anthropology, cultural studies, women's studies, urban studies and others. Readings in the work of Lefebvre, Foucault, Harvey, Stoler, Pratt, and others. Aims to develop a critical, theoretical approach to space and spatiality. Instructor: Stein. One course. C-L: Asian and African Languages and Literature 230S, Women's Studies 225S, Literature 287S

286S. Development. Modernity, and Social Movements. CCI, SS Modernization and ideologies of progress and nationalism; social movements, revolution, and political protest in the United States and around the world. Some prior background in cultural anthropology or social theory preferred. Consent of instructor required for undergraduate students. Instructor: Starn. One course.

287S. Ethnohistory of Latin America. CCI, CZ, R, SS Analysis of what can be known about nonwestern cultures described in texts written by European colonizers. Focus on native peoples whose lives were transformed by Spanish colonialism, with particular attention to post-Inca Andean Societies. Instructor: Silverblatt. One course. C-L: History 287BS, Literature 287BS


291S. Research Methods In International Area Studies. CCI One course. C-L: see Latin American Studies 202S; also C-L: Asian and African Languages and Literature 207S, Russian 203S, Romance Studies 202S, German 264S

299S. Special Topics in Linguistics. CCI, SS Same as Linguistics 299 except instruction is provided in a seminar format. Instructor: Staff. One course.

THE MAJOR

Major Requirements. A total of ten courses distributed in the following manner: Cultural Anthropology 94, 190, and 194; six courses at the 100 level or above, including at least one at the 191 level or above; one additional cultural anthropology course at any level. Students must take at least five of their ten courses with instructors whose primary appointment is in the Department of Cultural Anthropology. No more than three courses may be transferred from other institutions or study abroad.

Suggested Work in Related Disciplines. Related courses in other departments are strongly advised. Each student’s advisor will recommend a program of related work to complement the student's concentration and interests in cultural anthropology.

Departmental Graduation with Distinction

The department offers an intensive and personalized Graduation with Distinction program to qualified seniors, who research and write a senior thesis on a topic of their own choice in close collaboration with members of the cultural anthropology faculty. Admission to the program requires a 3.0 grade point average overall and a 3.3 grade point average in the major, both of which must be maintained to graduation for the student to be eligible for distinction. Qualified juniors will be notified each year by the director of undergraduate studies about their eligibility. To pursue distinction, students must then enroll in the senior seminar, Cultural Anthropology 195S and Cultural Anthropology 196S, in the fall and spring of their senior year, where they will learn about research methods and prepare a thesis. Credit for Cultural Anthropology 195S and Cultural Anthropology 196S is given for a passing grade whether or not the student is awarded distinction. The thesis can be based on original fieldwork on a topic of the student's choice, archival or library research, or some combination of various anthropological methods. Previous topics have ranged from studies of the influence of feminism in cultural anthropology to causes of revolution in Latin America, patterns of socialization of Mormon youth in Utah, music in the African diaspora (drawing on summer study in Ghana), and the consolidation of Korean-American identity through the 1992 Los Angeles rebellion. The student also forms a supervisory committee for the thesis during the fall of the senior year. It should consist of three faculty members who offer the student advice and support in preparing the thesis. At least two of the members must be faculty from the cultural anthropology department. Due in April of the senior year, the thesis must be judged of at least B+ quality by the supervisory committee to receive distinction. In addition, the student must pass an oral examination on the thesis, which is given on its completion by the supervisory committee, and present their findings to the public. Students who fulfill the above requirements graduate with distinction in cultural anthropology.

A typical sequence would be: select a research topic; take the senior seminar in fall and spring; form a supervisory committee; complete the research and writing by April and submit the final draft to the supervisory committee; schedule the oral defense for some time in early or mid-April; defend the thesis in an oral examination given by the supervisory committee.

THE MINOR

Requirements. A total of five courses distributed in the following manner: Cultural Anthropology 94; three courses at the 100 level or above; and one additional course at any level (this may include courses taken in the Focus Program).
Dance (DANCE)

Associate Professor of the Practice Khalsa, Director of the Program; Associate Professor of the Practice Dickinson, Director of Undergraduate Studies; Assistant Professor of the Practice of Ballet Walters; Assistant Professors of the Practice Shah and Vinesett; Professor of the Practice Emeritus Taliaferro; Associate Professor of the Practice Emeritus Dorrance

A major or minor is available in this program.

The field of dance includes the practice, creation, observation, and analysis of theatrical, social, and culturally specific dance forms both contemporary and historical. Choreographic and developmental processes and technical disciplines are the foundations that define every dance form. Cultural body behaviors are the movement vocabularies from which dance forms are made. The observation and analysis of dance in its cultural context is central to the study of cultures and a vital aspect of exploration in cross-cultural inquiry. A culture's values are embodied (literally and figuratively) in its dance forms, and for most civilizations of the world, dance is one of the most important expressions of their worldview.

Because dance integrates the physical, creative, emotive and intellectual spheres, the Dance Program emphasizes a balanced integration between the creative/performance and the historical/theoretical aspects of dance, and provides a learning environment that challenges the student's intellectual, expressive, and physical capabilities. The aim of the program is to develop students who are sensitive and articulate physical and verbal communicators of the visual art of dance and who are proficient in the analysis of dance in its cultural manifestations.

Courses in technique and performance (partial credit courses) and theory courses (full course credit) are offered. Courses in technique and performance may be repeated for credit. A maximum total of four course credits (made up of partial credit courses) in technique and performance courses may count toward the thirty four courses required for graduation.

Students are encouraged to enroll in a summer session with the American Dance Festival. One course credit earned at the American Dance Festival may be counted toward the requirements of the major or minor.

Through the Duke in New York Arts Program a student has the opportunity in the fall semester of the junior or senior year to pursue the study of dance in New York City. Appropriate courses taken at New York University may fulfill a requirement of the major or minor.

Courses in Technique and Performance (half-credit courses)

60. Modern Dance I. A movement course exploring modern dance through technique, improvisation, and composition. No previous dance experience necessary. Instructor: Dickinson, Khalsa, or staff. Half course.

61. Modern Dance II. Prerequisite: Dance 60 or equivalent. Instructor: Dickinson, Khalsa. Half course.

62. Modern Dance III. Increased complexity of movement sequences and greater emphasis on clarity of expression and quality of performance. Prerequisite: Dance 61 or equivalent. Instructor: Dickinson, Khalsa, or staff. Half course.

63. Modern Dance IV. Continuation of Dance 62. Prerequisite: Dance 62 or equivalent. Instructor: Dickinson, Khalsa, or staff. Half course.

64. Modern Dance V. Prerequisite: Dance 63 or equivalent. Instructor: Dickinson, Khalsa, or staff. Half course.

67. Intermediate/Advanced Tap Dance. Prerequisite: previous training at the intermediate level. Instructor: Medler. Half course.
68. Ballet I. Barre work concentrating on body alignment and correct placement within the ballet vocabulary followed by center adagio and allegro sequences. Prerequisite: a semester of ballet or equivalent. Instructor: Walters. Half course.
70. Ballet II. Barre work concentrating on body alignment and correct placement within the ballet vocabulary followed by center adagio and allegro sequences. Prerequisite: Dance 68 or equivalent. Instructor: Staff. Half course.
71. Ballet III. Greater complexity of barre and center sequences with increased emphasis on correctness of style and quality of performance. Prerequisite: Dance 70 or equivalent. Instructor: Walters or staff. Half course.
72. Jazz Dance II. Prerequisite: Dance 69 or equivalent. Instructor: Wheeler. Half course.
73. Ballet IV. Progression of Dance 71 with increased emphasis on line, style, and performance-level quality and technique. Diverse batterie, pirouettes, and tours included in allegro combinations. Prerequisite: Dance 71 or equivalent. Instructor: Walters or staff. Half course.
74. Ballet V. Continuation of Dance 73. Daily training for the performing student at the advanced/professional level. Prerequisite: Dance 73 or equivalent. Instructor: Walters or staff. Half course.
75. Kathak: Classical Dance of North India. An introduction to Kathak, which, like all classical dances of India, synthesizes physical energy and spiritual power. Fundamentals of Kathak's facial expressions, graceful movements of the arms and torso, and intricately complex footwork which creates rhythmic sound patterns using ankle bells. Instructor: Shah. Half course.
76. African Dance Technique I. Introduction to African dance styles and related rhythmic structures from selected countries such as Guinea, Senegal, Nigeria and Cote d'Ivoire. Taught in the context of their social, occupational, and religious functions. Instructor: Staff. Half course.
77. African Dance Technique II. Continuation of Dance 76. Dances from selected African ethnic groups providing increasingly complex movement sequences and rhythmic structures. Emphasis on greater technical proficiency, clarity of expression and quality of performance. Taught in the context of their social, occupational and religious functions. Prerequisite: Dance 76 or consent of instructor. Instructor: Vinesett. Half course.
79. Repertory: Modern. The study of choreography and performance through participation in the mounting of a dance work from inception through rehearsal to performance. Consent of instructor required. Instructor: Dickinson, Khalsa, or staff. Half course.
80. Repertory: Ballet. The study of choreography and performance through participation in the mounting of a dance work from inception through rehearsal to performance. Consent of instructor required. Instructor: Walters or staff. Half course.
83. Capoeira: Brazilian Dance/Martial Art. Introduction to Capoeira, the dynamic art form that emerged in Brazil during the era of the Atlantic Slave Trade and blends music, ritual, acrobatic movement, and combat. Instructor: Staff. Half course.
86. Swing Dance. A studio course to learn the "lindy-hop" (jitterbug) and a variety of related steps and partnering including simple lifts. Instructor: Badu. Half course.

87. Hip-Hop. Hip-Hop, as inner-city culture that has created its own art, language, fashion, music and dance styles. Using dance as a time-line the course explores the history, development and core elements of hip-hop dance culture. Instructor: Green. Half course.


Theory Courses

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

95FCS. The Art of Transformation: A Workshop in Movement and Theater. ALP One course. C-L: see Theater Studies 95FCS

101. Introduction to Dance. ALP, CCI Dance as a reflection of historical and current cultural values. Introduction to some of the major forms of world dance (for example, classical dances of Europe, Asia and Africa, and American modern dance); how dance forms illuminate and define gender, personal and group identity, political and religious status, aesthetic values, and the intentions of the dance-makers; dance as an educative force, a facilitator of cultural acquisition, and a reflection of cultural change; the function of dance in various cultural settings; how to look at dance, to analyze movement, and to read the text of dance structure. Instructor: Dickinson or Shah. One course. C-L: International Comparative Studies 104A

104. Music and Movement. ALP Exploration of elements of music, music structures, and their relationship to movement and dance. Practical emphasis on rhythmic analysis, musicality, notation, mindful listening, and choreography/composition. Daily movement, rhythm and/or choreographic exercises, along with written assignments. Useful for dance students and others interested in the dance/music connection. Instructor: Hanks. One course.

110A. West African Rootholds in Dance. ALP, CCI A lecture and dance laboratory course that explores three West African traditional dance forms and their relationship to the religious and social life in Africa and the Diaspora. Dance examined through the historical and aesthetic frames, in terms of its affect on the continuity and transformation of physical texts as cultural heritage. Guest lecturers, videos, research project. Instructor: Vinesett. One course. C-L: African and African American Studies 110A, Asian and African Languages and Literature 110A, Cultural Anthropology 129A, Religion 161A


114. T'ai Chi and Chinese Thought. CCI, CZ One course. C-L: see Religion 114

128. The Art and Cultural History of Flamenco. ALP, CCI, CZ A lecture and dance laboratory course that examines the history of Flamenco, a dance and music form of southern Spain forged by a remarkable intercultural exchange among Arabic, Judaic, and Iberian cultures, inhabitants of Spain, and subsequently enriched by rhythms and influences from the East Indian gypsies and from Latin America. Examination of the three elements of flamenco: cante (song); baile (dance); and toque (guitar). Flamenco's place in the cultural life of Spain and its evolution to contemporary forms. Lab component introduces students to the complex footwork, rhythms, and physical style of flamenco. Taught in English. Instructor: Santana. One course. C-L: Spanish 128

130. Ballet Masterworks of the Twentieth Century. ALP Works by Fokine, Nijinscki, Balanchine, Tudor, Tharp, Forsythe, and other major choreographers in the classical idiom, and how they initiated, influenced, absorbed and responded to modernist and post-modernist..
ideas and trends. The transformation of the classical aesthetic through the century. Instructor: Walters. One course.

131S. Iconoclasts and Visionaries: Modern Dance, 1890-1950. ALP, CCI Modern dance as an art of individuals who created new dance styles that challenged established systems of culture and pushed the boundaries of good taste. Reflection and commentary on contemporary mores and events, international influences from France, new anthropological studies, German expressionism and the religions of Asia, Native Americans and African Americans. The Americanization of theatrical dance in the bicultural environment of the United States during the 1930s and 40s. Instructor: Dickinson or Shah. One course.

132S. The Victory of the Iconoclasts: Postmodern Dance, 1950-2000. ALP, W An examination of American modern dance since the 1950s, which restructured what kinds of movements were considered "dance" and what kind of dance was considered art. Postmodern dance as iconoclastic and inclusive, embracing performance art and film, theater and hip hop, fostering the rebirth of modern dance in Europe between 1970-90, and now re-absorbing and recycling the new forms it helped to create. Videos of dancing, guests, workshops, performances. Instructor: Shah. One course.

135S. Dance Composition. ALP, R The basic elements of movement (time, space, weight, flow) and their choreographic applications explored through structured improvisation, short movement studies, viewing of videotaped dances, and selected readings. Experimentation with devices for movement manipulation and choreographic forms through longer movement studies. Prerequisite: a beginning level dance technique course (modern, ballet, jazz, or African) or consent of instructor. Instructor: Dickinson or Khalsa. One course.

136T. Advanced Dance Composition. ALP, R Continuation of the basic elements of movement, choreographic devices and forms explored in 135S. The use of props, sets, lighting and costuming; the relationship of music to dance. Choreographing and directing ensembles. Prerequisite: Dance 135S or consent of instructor. Instructor: Dickinson or Khalsa. One course.

140S. Solo Performance. ALP, W One course. C-L: see Theater Studies 140S


149. Dance and Dance Theater of Asia. ALP, CCI, CZ Asian dance and dance theater performance genres and the cultural aesthetics that inform them. Cultural traditions of China, Korean, Japan, India, Indonesia, Thailand and Cambodia. Religious, ritual, folk and royal court forms of artistic performance. The mythology, legends and symbolic interpretations that underlie the thematic core of these performance traditions; spiritual importance of disciplined training; the intercultural translation and adaptation of Asian performance disciplines to the West. Instructor: Shah. One course. C-L: Cultural Anthropology 149, Theater Studies 133, Asian and African Languages and Literature 149, Religion 161C, International Comparative Studies 170C

151. Functional Anatomy for Dancers. ALP The functional anatomy of the musculoskeletal system (muscles, bones, and joints) as specifically applied to dance technique approached through observation, analysis, and movement exploration. Concepts of efficient use and questions of misuse of the body in motion or at rest. Instructor: Staff. One course.


159S. Beyond Technique: The Art of Performance. ALP, R Examination of the complex artistic process of performance necessary to realize the choreographer's intent; development of interpretive abilities beyond the mastery of technique and style; classic and contemporary approaches to embodying content. Readings in the literature of performance and imaging; written analysis of performance; vigorously coached rehearsal sessions. Prerequisite: intermediate/advanced level of modern, ballet, or African dance technique. Instructor: Dickinson and Walters. One course.

162S. Movement for the Theater. ALP One course. C-L: see Theater Studies 152S

175. Gender in Dance and Theatre. ALP, CCI, CZ Ways in which gender and sexuality are conceptualized in selected performance cultures. Interprets these historically constituted social formations through an examination of the diverse cultural constructions of gender meanings, representations and ideologies as interpreted and expressed in dance and theatre. Symbolic meanings of gender in relation to forms of social life and theatrical experience. The Devadasi in India, the concept of the male embodied Onnagata, and the notion of the female embodied Otokoyaku in the dance-theatre of Japan. Instructor: Shah. One course. C-L: Women's Studies 111, Theater Studies 132, Cultural Anthropology 149A, Asian and African Languages and Literature 176, International Comparative Studies 170E, Study of Sexualities

181. Special Topics. Content to be determined each semester. Consent of instructor required. Instructor: Staff. One course.

181S. Special Topics. Content to be determined each semester. Consent of instructor required. Instructor: Staff. One course.

182T. Choreography. ALP, R Advanced study in dance composition designed to develop the student's personal mode of expression. Prerequisites: Dance 135S, Dance 136T, and consent of instructor. Instructor: Dickinson or Khalsa. One course.


191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


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199S. Research Methods in Dance Studies and Choreographic Performance. ALP, CCI, CZ, R, W Theory, history, ethnography, education, choreography/practice, and therapy in dance. Readings in methods of interviewing and documentation, participatory experience, and issues of objectivity in ethnographic research. Students develop and submit a research paper that formulates and researches an extensive individual project completed in 200T (Senior Project). Prerequisites: Junior or senior standing, Dance 101, and one additional course in dance history, theory or world cultures of dance. Consent of instructor required. Instructor: Shah. One course.

200AT. Senior Project. ALP, R, W Choreographic project to be researched, created, produced, and performed at the end of term; an accompanying written research paper that presents the themes of the choreographic project, the process of creation in accordance with the guiding metaphor that drives the choreography, and the place of the work within contemporary artistic trends. Open only to seniors earning a major in dance and with permission to seniors earning a minor in Dance. Consent of instructor required. Instructor: Staff. One course.

200T. Senior Project. ALP, R A research paper, project, or program (with appropriate written documentation) under dance faculty supervision. Open only to seniors earning a major in dance and with permission to seniors earning a minor in Dance. Consent of instructor required. Instructor: Staff. One course.

THE MAJOR

Major Requirements: To major in Dance, a student must take a minimum of twelve courses.

I. Theory courses - 10 course credits
   A. 101. Introduction to Dance
   B. 135S. Dance Composition
   C. One course in dance history, theory, or world cultures of dance selected from the following list. Students cannot select a course that is also listed under their chosen concentration (below).
      110A and 110B. West African Rootholds in Dance
      128. The Art and Cultural History of Flamenco
      129S. A History of Ballet before 1900
      130. Ballet Masterworks of the Twentieth Century
      131S. Iconoclasts and Visionaries: Modern Dance, 1890-1950
      147. History and Practice of Dance of India
      149. Dance and Dance Theater of Asia
      158. Dance and Religion
      175. Gender in Asian Dance and Dance Theatre Performance
      188S. The Diaghilev Ballet, 1909-1929
   D. 104. Music and Movement, or one course chosen from Music 55, 65 or 70.
   E. Two courses chosen from one of the following three concentrations:
      1. Dance of the Twentieth and Twenty-first Centuries
         95FCS. The Art of Transformation (Focus Program)
         130. Ballet Masterworks of the Twentieth Century
         131S. Iconoclasts and Visionaries: Modern Dance, 1890-1950
         179. History of Performance Art
         188S. The Diaghilev Ballet, 1909-1929
      2. Dance and Human Movement in its Cultural Context
         110A and 110B. West African Rootholds in Dance
         114. T'ai Chi and Chinese Thought.
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128. The Art and Cultural History of Flamenco
147. History and Practice of Dance of India
149. Dance and Dance Theater of Asia
155. Kundalini Yoga and Sikh Dharma
158. Dance and Religion
175. Gender in Asian Dance and Dance Theatre Performance

3. Choreography and Performance
   111. Dance Science: An Evolutionary Approach to Functional Anatomy.
   136T. Advanced Dance Composition.
   151. Functional Anatomy for Dancers.
   159. Beyond Technique: The Art of Performance
   182T. Choreography.
F. 199S. Research Methods in Dance Studies and Choreographic Performance
G. 200T. Senior Project
H. Two additional full-credit courses in dance.

In addition, students may petition for credit for courses offered in other programs and departments, with clear documentation of their intellectual value to the overall goals of the major.

II. Technique and performance half-credit courses—equivalent to two course credits
A. Two courses (one in each of two different dance forms) in dance technique at the second level or above (e.g., Modern Dance II, African Dance II, Ballet II, Jazz II).
B. Two courses in repertory chosen from Dance 81, 82, 83 and 84.

Students majoring in Dance are expected to attain and/or maintain the high intermediate level of modern dance or ballet or African dance technique. Twenty hours total of crew and production work are required of each student. This may be completed at any time during the four-year undergraduate experience.

THE MINOR

Requirements. To earn the minor in dance, students take six course credits: two semesters (equivalent of one course credit) of repertory chosen from Dance 81, 82, 83, 84 and five full-credit courses including 101 (Introduction to Dance); Dance 135S (Dance Composition); one course in dance history, theory, or world cultures of dance selected from the list below; and two additional courses in dance at the 100 level or above.

Courses in dance history, theory or world cultures of dance:
110A and110B. West African Rootholds in Dance
128. The Art and Cultural History of Flamenco
129S. A History of Ballet before 1900
130. Ballet Masterworks of the Twentieth Century
131S. Iconoclasts and Visionaries: Modern Dance, 1890-1950
132S. The Victory of the Iconoclasts
147. History and Practice of Dance of India
149. Dance and Dance Theater of Asia
158. Dance and Religion
175. Gender in Asian Dance and Dance Theatre Performance
188S. The Diaghilev Ballet, 1909-1929

The student is expected to attain and/or maintain the intermediate level of at least one of the following: modern dance, ballet or African dance technique. Twenty hours total of crew and production work are required of each student. This may be completed at any time during the four-year undergraduate experience. With the permission of the student’s dance
faculty advisor and the director of undergraduate studies, a student may be allowed to substitute other dance courses for the above requirements.

**Documentary Studies (DOCST)**

Associate Professor of the Practice Rankin and Adjunct Assistant Professor Thompson, Co-Directors

A certificate, but not a major, is available in this program.

The goal of this interdisciplinary program is to introduce, broaden, and enhance the technical skills and the theoretical and ethical awareness of students who specialize in one or more of the following modes of community-based fieldwork: photography, oral history, audio, filmmaking, folklore, and ethnographic writing. Courses in this area are offered through the Center for Documentary Studies, African and African-American Studies, Art, Cultural Anthropology, Film/Video/Digital, History, and Public Policy Studies. The Center for Documentary Studies also houses a number of documentary projects that address issues of literacy, collaborative photography, oral history, and farmworker advocacy that students will be exposed to through their affiliation with this program. A major goal of this program is to connect student experience and creativity to community life. Documentary Studies courses teach an arts-and-humanities-based fieldwork research methodology.

Achievement of the program's goal is facilitated by an integrated curriculum of required and elective courses that allow students to specialize in one or more areas of documentary work, and to complete a major documentary project under the guidance of participating faculty members. An active advisory procedure assists students in planning fieldwork projects and other learning opportunities. A certificate is available for students who complete program requirements. Participation in documentary studies courses, with the exception of the capstone course, is available to all undergraduates whether or not they seek the certificate.

The Certificate in Documentary Studies is awarded to students who successfully complete six courses approved as part of the Documentary Studies program. These include a required survey course titled Traditions in Documentary Studies, four related courses from the approved courses (including electives) listed in this undergraduate bulletin, and a required capstone course, Seminar in Documentary Studies. During the seminar, students are expected to bring to completion one major documentary project (using audio, video, photos, and/or ethnographic writing methods) and to present this project to an audience outside the classroom by the semester's end. The Seminar in Documentary Studies is designed as the culminating experience of the certificate program and is therefore open only to students enrolled in the program. Electives chosen by the student under the guidance of the program co-director should facilitate the completion of the final project.

**49S. First Year Seminar.** Topics vary each semester offered. Instructor: Staff. One course.

**100S. Children and the Experience of Illness.** SS An exploration of how children cope with illness, incorporating the tools of documentary photography and writing. Students will work outside class with a child who is ill and teach them how to use a Polaroid camera, working towards an exhibit of photographs at the end of the semester. Permission required. No prerequisites. Instructor: Moses. One course. C-L: Public Policy Studies 100S, Visual Studies 103IS

**101. Traditions in Documentary Studies.** ALP, CCI Traditions of documentary work seen through an interdisciplinary perspective, with an emphasis on twentieth-century practice. Introduces students to a range of documentary idioms and voices, including the work of photographers, filmmakers, oral historians, folklorists, musicologists, radio documentarians, and writers. Stresses aesthetic, scholarly, and ethical considerations involved in representing other people and cultures. Instructor: Staff. One course. C-L: Visual Studies 103A

**102. Visual Culture and Photography.** ALP One course. C-L: see Visual Studies 193
103. Special Topics in Sound Technology. ALP Topics focusing on technical basis and aesthetic motivation of sound recording and sound exploitation. Technical demonstration and student exercises explore the mechanics and dramatic and psychological implications of formats, microphone placement, mixing, acoustic signature, digital recording, double system, and sound editing, leading to an individually produced sound design for live action or animation film/video. Prerequisite: Theater Studies 174, English 101A, Literature 110. Instructor: Staff. One course. C-L: Information Science and Information Studies


105S. The Documentary Experience: A Video Approach. ALP, R, SS A documentary approach to the study of local communities through video production projects assigned by the course instructor. Working closely with these groups, students explore issues or topics of concern to the community. Students complete an edited video as their final project. Not open to students who have taken this course as FVD 105S. Consent of instructor required. Instructor: Hawkins. One course. C-L: Cultural Anthropology 134S, Film/Video/Digital 139S, History 150BS, Political Science 156S, Public Policy Studies 105S, Visual Studies 103CS

107. Introduction to Documentary Film. ALP, CCI One course. C-L: see Film/Video/Digital 102; also C-L: Art History 122, Literature 120E, Visual Studies 117C

110S. Introduction to Oral History. CZ, R Introductory oral history fieldwork seminar. Oral history theory and methodology, including debates within the discipline. Components and problems of oral history interviewing as well as different kinds of oral history writing. Instructor: Staff. One course. C-L: History 128S

111S. Documentary Writing: Creative Nonfiction Through Fieldwork. ALP, R, W Techniques of independent field research and reporting in the documentary tradition. Emphasis on structure, development, and style of factual narrative-including exercises in redrafting and editing-culminating in a final piece of documentary writing based on students' fieldwork experience. Historical development of documentary writing in relation to the diverse cultures that produced it. Instructors: Thompson, Tyson or staff. One course. C-L: English 101ES


113S. A Digital Approach to Documentary Photography: Capturing Transience. ALP Investigates subjects in transition, with focus on changing physical and social landscapes of North Carolina. Digital darkroom techniques include digital capture, film scanning, Photoshop, ink-jet printing, as well as other methods of dissemination offered in digital age. Digital photographic impermanence as well as social transience discussed in unison. Consent of instructor required. Instructor: Post-Rust. One course. C-L: Visual Arts 112S, Visual Studies 103JS, Information Science and Information Studies

114S. Large Format Photography. ALP Advanced black and white photography course exploring unique creative latitude of large negative format. Includes advanced printing/toning techniques and alternative processes such as platinum/palladium. Prerequisite: DOCST 115, Visual Arts 115, or its equivalent. Consent of instructor required. Instructor: Satterwhite. One course. C-L: Visual Arts 114S, Visual Studies 103KS

115. Introduction to Photography. ALP Foundation class in black-and-white photographic process as the basis for using photography as a visual language. Class learns to make a printable exposure using black-and-white film, make a "proper proof" and an 8 x 10
enlargement. Assignments include portraits, alternative techniques, landscape, and a final portfolio that embodies a single visual idea. Consent of instructor required. Instructor: Hunter. One course. C-L: Visual Arts 115, Visual Studies 103L

117. Documentary Photography and the Southern Culture Landscape. ALP, CCI Emphasis on the tradition and practice of documentary photography as a way of seeing and interpreting cultural life. The techniques of black-and-white photography—exposure, development, and printing—diverse ways of representing the cultural landscape of the region through photographic imagery. The role such issues as objectivity, clarity, politics, memory, autobiography, and local culture play in the making and dissemination of photographs. Instructor: Rankin. One course. C-L: Visual Arts 117, Visual Studies 103M


120S. Documentary Research Methods. ALP, R Introduction to documentary research methods for film, photography, audio, narrative. Fieldwork with community resources, documents, oral histories, photographs, artifacts, archives. Collaborative project about North Carolina's past and independent project on student's own research interests. Instructor: Staff. One course. C-L: History 150CS


129. Contemporary Documentary Film: Filmmakers and the Full Frame Documentary Film Festival. ALP, CCI, STS One course. C-L: see Film/Video/Digital 103; also C-L: Political Science 156A, Public Policy Studies 171

132. The South in Black and White. ALP, CCI, CZ Focus on present-day and historical documentary traditions in American South, with an emphasis on call and response between black and white cultures. The arts and humanities as imbedded in particular histories and cultures found in the South, and as performed in music and theater; and portrayed in documentary films, civil rights photography, Southern literature, and historical and autobiographical writing. Includes historical texts, oral histories and testimonies of living persons, along with documentary films, photographs, and writings from people in Durham and elsewhere in the region. Instructor: Tyson. One course. C-L: African and African American Studies 131

133S. Adapting Literature -- Producing Film. ALP One course. C-L: see Film/Video/Digital 133S; also C-L: Visual Arts 138S, Information Science and Information Studies

135S. Introduction to Audio Documentary. ALP, R Recording techniques and audio mixing on digital editing software for the production of audio (radio) documentaries. Various approaches to audio documentary work, from the journalistic to the personal; use of fieldwork to explore cultural differences. Stories told through audio, using National Public Radio-style form, focusing on a particular social concern such as war and peace, death and dying, civil rights. Instructor: Biewen. One course. C-L: Information Science and Information Studies

234 Courses and Academic Programs
141S. Editing the TV Documentary: From Creativity to Collaboration to Negotiation. ALP One course. C-L: see Film/Video/Digital 141S; also C-L: Visual Studies 117LS


145S. The Photographic Portrait: The Practice of Representation. ALP A studio course exploring the history of photographic portraiture -- which has described and helped define notions of identity, race, and gender -- as well as the work of contemporary portrait artists working in a post-modern age where representation and identity are deconstructed. Technical skills as well as conceptual strategies emphasized. Includes visiting lecturers who are practicing artists. Open to students from Duke and the University of North Carolina at Chapel Hill and conducted on both campuses, alternating each week. Instructor: Staff. One course. C-L: Visual Arts 144S, Visual Studies 103QS

146S. Sociology through Photography. ALP, SS Documentary photography used as a tool to see the world through a sociological lens. Photographs and the social construction of reality; generic components of social organization (codes of conduct, mechanisms of social control); power relations and social inequalities; and social identities (how they're formed in relation to structures, experiences, history and culture). Consent of instructor required. Instructor: Hyde. One course. C-L: Sociology 152S, Visual Studies 103RS

147S. Collaborative Art: Practice and Theory of Working Within a Community. ALP Approaches of various contemporary artists to creating collaborative work resulting in artworks that express a variety of social and aesthetic positions and include progressive educational philosophies and radical democratic theory. Field work with a community institution or small group in Durham to produce collaborative work in a medium of students' own choosing. Instructor consent required. Instructor: Ewald. One course. C-L: Visual Arts 147S, Visual Studies 103TS

148S. Planning the Documentary Film: From Concept to Treatment. ALP, R Historical documentary film preparation through narrative, character-driven stories. Using the raw material of real life, students organize the conceptual process for historical documentary films, framing a logical sequence of events structured for dramatic effect. Focus on the pre-production activities and principles that lead to a treatment that is the foundation for an efficient shooting schedule. Instructor: Staff. One course. C-L: Film/Video/Digital 140S, Visual Studies 103US, Information Science and Information Studies


155S. Hearing is Believing: Intermediate Audio Documentary. ALP, R Intermediate to advanced audio documentary techniques. Includes instructor-supervised fieldwork with an audio recorder in a variety of cultural settings on a particular issue, as well as independent work on students' own audio productions resulting in a broadcast quality piece suitable for radio or pod-casting. Prerequisite: Documentary Studies 135S or equivalent. Consent of instructor required. Instructor: Biewen. One course. C-L: Information Science and Information Studies

158S. Small Town USA: Local Collaborations. ALP, CCI, R Theory and practice of documentary photography in a small-town context. Students working in collaboration with one nearby small town complete a documentary photographic study of one individual or group within that town. Includes analysis of the documentary tradition, particularly as it relates to locally situated work and to selected individual projects; building visual narrative, developing honest relationships with subjects, responsibility to subjects and their communities, and engaging with and portraying a community as an outsider. Photo

162S. Farmworkers in North Carolina: Roots of Poverty, Roots of Change. CCI, SS
Focus upon those who bring food to our tables, particularly those who labor in the fields of North Carolina and the Southeast. Farm work from the plantation system and slavery to sharecropping, and to the migrant and seasonal farmworker population today. Documentary work and its contributions to farmworker advocacy. Instructor: Thompson. One course. C-L: Cultural Anthropology 162S

164S. Who Cares and Why: Social Activism and its Motivations. CCI, R, SS, W
Documentary fieldwork-based research on the lives of people who have committed themselves to changing society. Life history interviews exploring personal and societal transformations with special attention to the antecedents to personal change leading to examined lives of commitment. Attention to various areas of social change, including human rights, civil rights, international activism, labor rights, and environmental activism. Focus on societal and personal questions regarding motivations for, and the effectiveness of, good works in several cultural settings. Instructor: Thompson. One course. C-L: Cultural Anthropology 168S

168S. Documenting Religion. CCI, CZ
Exploration of how religious communities interpret and live out such themes as sacred spaces, hope, power, pilgrimage, identity, commitment, evil, gifts, bodies, death, and regeneration. Student participation in, and documentation of, a religious community of the student's choosing. Fieldwork off campus required. Instructor: Thompson. One course. C-L: Religion 161QS, Cultural Anthropology 162AS, Visual Studies 103GS

176S. American Communities: A Photographic Approach. ALP, CCI, SS
Theory and practice of documentary photography. Students complete a documentary photographic study of a community outside the university. Study of the documentary tradition and classic documentary books while emphasizing the photographs produced by the students. Consent of instructor required. Instructor: Harris or Sartor. One course. C-L: Visual Arts 118S, Public Policy Studies 176S, Visual Studies 103XS, Film/Video/Digital, Policy Journalism and Media Studies

177S. Advanced Documentary Photography. ALP, SS
An advanced course for students who have taken Public Policy Studies 176S or have had substantial experience in documentary fieldwork. Students complete an individual photographic project and study important works within the documentary tradition. Prerequisite: Visual Arts 118S, Public Policy Studies 176S, or consent of instructor. Instructor: Harris, Rankin, or staff. One course. C-L: Visual Arts 119S, Public Policy Studies 177S, Visual Studies 103YS, Film/Video/Digital, Policy Journalism and Media Studies

178S. Color Photography: Fieldwork and Digital Color. ALP
An advanced, field-based course on the theory and practice of color photography, emphasizing color photography as a documentary tool. The language of color photography and the work of contemporary color photographers studied as a catalyst for students' own color documentary projects about local social landscapes. Advanced techniques of Photoshop and pigment printing. Permission of instructor required. Instructor: Harris. One course. C-L: Visual Arts 178S, Visual Studies 103ZS

180S. The Photographic Essay: Narratives Through Pictures. ALP
The ways in which particular photographers have created photographic essays that communicate to a wide audience. Research and study of the classic and contemporary masters of photography. Students learn to choose, sequence, and pace images as exhibition quality inkjet prints, according to the format of their final presentation (book, magazine, exhibition, and web-based). Instructor consent required. Instructor: Harris. One course. C-L: Visual Arts 180S

190S. Special Topics in Documentary Studies. Selected topics in methodology, theory, or area in seminar format. Instructor: Staff. One course.
193S. Documentary Engagement Through Field-Based Projects. ALP Documentary photography as a tool for social engagement in preparation for intensive field-based projects. Students study documentary photographers while planning and refining their own documentary projects through which they will address societal issues locally, nationally, or abroad. Students learn and refine valuable technical skills such as Photoshop, inkjet printing, and web-based methods in order to complete a preliminary documentary project by the end of the semester. Consent of instructor required. Required participation in service learning. Instructor: Harris. One course. C-L: Public Policy Studies 168S

194S. Multimedia Documentary: Editing, Production, and Publication. ALP A production course for students who have undertaken a substantial documentary fieldwork project over the summer, such as DukeEngage students, recipients of the John Hope Franklin Student Documentary Awards, or other students working on independent projects. Edit and shape fieldwork material into a Web-based multimedia presentation. Learn current technologies and techniques for multimedia publications. Examine unique storytelling strategies for on-line presentations and compare this medium to traditional venues for documentary work such as exhibitions, books, and broadcast. Consent of instructor required. Instructor: Sims. One course. C-L: Visual Arts 194S, Visual Studies 131AS

196S. Capstone Seminar in Documentary Studies. ALP, R Immersion in fieldwork-based inquiry and in-depth projects that serve as Certificate in Documentary Studies capstone experiences for students. Methods of documentary fieldwork, including participant observation, and modes of arts and humanities interpretation through a variety of mediums (including papers, film, photography exhibits, radio pieces, and performances). Consent of instructor and director of undergraduate studies required. Prerequisite: Documentary Studies 101 and four Documentary Studies electives. Instructor: Staff. One course.

PROGRAM COURSES
African and African American Studies
145A. Africans in America to the Civil War
145B. African Americans Since the Civil War

Art History
199. History of Photography, 1839 to the Present

Asian and African Languages and Literature
137. Contemporary Culture in South Asia

Cultural Anthropology
104. Anthropology and Film
108. Fantasy, Mass Media, and Popular Culture
128. Culture and Politics in Latin America
131S. Documentary Film/Video Theory and Practice
145A. World Music: Aesthetic and Anthropological Approaches
145B. Music, Social Life, and Scenes
164S. The Anthropology of Hinduism: From Encounter to Engagement

English
101CS. Documentary Film/Video Theory and Practice

Film/Video/Digital
138S. Documentary Film/Video Theory and Practice
143S. Sound for Film and Video

History
145A. Africans in America to the Civil War
145B. African Americans Since the Civil War

International Comparative Studies
101C. Anthropology and Film
103E. Fantasy, Mass Media, and Popular Culture
130A. Culture and Politics in Latin America

Music
136. World Music: Aesthetic and Anthropological Approaches
137. Music, Social Life, and Scenes
Philosophy
162. Human Rights in Theory and Practice
Political Science
162. Human Rights in Theory and Practice
Public Policy Studies
123S. Watchdogs and Muckrakers: Investigative Journalism and Public Policy
125. News as Moral Battleground
162. Human Rights in Theory and Practice
Religion
164S. The Anthropology of Hinduism: From Encounter to Engagement
184. Religion and Film
Visual Arts
116S. Photography
Visual Studies
101G. History of Photography, 1839 to the Present
110A. Anthropology and Film
110B. Fantasy, Mass Media, and Popular Culture
117KS. Documentary Film/Video Theory and Practice
191. Digital Imaging

Ecology
For courses in ecology, see biology, environment (Nicholas School), and environmental sciences and policy program.

Early Childhood Education Studies
Adjunct Associate Professor Bryant, Director
A certificate, but not a major, is available in this program.

The six-course Early Childhood Education Studies Certificate Program allows students to develop a specialization in early childhood development and the conditions of early childhood by pursuing studies in psychology, sociology, cultural anthropology, public policy, and education, and by participating in a supervised internship experience with child care centers, preschools, and families. The certificate requires two specific courses: Education 121 and the capstone internship seminar, Education 160S. The first provides a comprehensive view of early childhood education, its history, programs, and current issues; the second provides direct experience under supervision in an approved early childhood program combined with bi-weekly group discussions with a Duke internship supervisor. No more than three courses that originate in a single academic unit may be taken; the internship is open only to students seeking the certificate.

The certificate in Early Childhood Education Studies will help qualify students to work in a variety of early childhood fields which may include research, child care service, and providing leadership to raise standards in communities for improved early childhood programs. The program helps students to identify an area for postbaccalaureate study. Students with interests in social work, education, child psychology, pediatrics, and policy issues will enhance their understanding of these areas through study in this program. For additional information consult the Program in Education.

Candidates need six (6) courses.
I. Two required courses:
   121S. Infancy, Early Childhood, and Educational Programs
   160S. Early Childhood Internship
II. Four (4) elective courses, two in each area: *

A. Development of the Child:

**Education**
- 121S. Infancy, Early Childhood, and Educational Programs
- 160S. Early Childhood Internship

**Human Development**
- 124. Human Development
- 180. Psychosocial Aspects of Human Development

**Linguistics**
- 153S. Issues in Language Development

**Psychology and Neuroscience**
- 97. Developmental Psychology: Introduction and Survey
- 119B. Child Clinical Psychology
- 124. Human Development
- 130. Psychosocial Aspects of Human Development
- 131. Social Development
- 153S. Issues in Language Development
- 159S. Biological Psychology of Human Development
- 183AS. Research Methods in Developmental Psychology
- 183BS. Child Observation
- 205S. Children's Peer Relations
- 206S. Pediatric Psychology

**Sociology**
- 124. Human Development

B. Conditions of Childhood:

**Cultural Anthropology**
- 115S. The Anthropology of Gender: Special Topics
- 165. Psychological Anthropology

**Education**
- 112S. Children, Schools and Society

**Psychology and Neuroscience**
- 113B. Psychological Anthropology

**Public Policy Studies**
- 109S. Children, Schools and Society

**Sociology**
- 111. Wealth, Power, and Inequality
- 117. Childhood in Social Perspective
- 118. Sex, Gender, and Society
- 150. The Changing American Family
- 169. Psychosocial Aspects of Human Development
- 215. Basic Demographic Methods

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**Earth and Ocean Sciences (EOS)**

Professor Lozier, *Chair*; Professor Corliss, *Director of Undergraduate Studies*; Professors Baker, Boudreau, Corliss, Haff, Jackson, Kay, Klein, and Lozier; Associate Professors Murray, Newell, Pratson, and Vengosh; Professors Emeriti Barber, Heron, Livingstone, Perkins, and Pilkey; Instructor Glass

A major or a minor is available in this division.

The Division of Earth and Ocean Sciences offers introductory and advanced courses in coastal geology, environmental geology, hydrology, geochemistry, geomorphology, oceanography, paleontology, petrology, sedimentology, and marine geology. A Bachelor

* Of the four elective courses, only one may be a Program in Education course; additionally, a limit of three courses may be taken from any one of the remaining departments.
of Science degree is offered for those students wishing to pursue further studies in the earth and ocean sciences, and for those who intend to work professionally in environmental sciences. A Bachelor of Arts degree is offered for those students who do not intend to pursue the earth sciences professionally, but wish to understand more fully local and global environmental issues. Additional information about the division can be found on the divisional Web site: http://www.nicholas.duke.edu/eos.

11. The Dynamic Earth. NS, STS Introduction to the dynamic processes that shape the Earth and the environment and their impact upon society. Volcanoes, earthquakes, seafloor spreading, floods, landslides, groundwater, seashores and geohazards. Emphasis on examining the lines of inductive and deductive reasoning, quantitative methods, modes of inquiry, and technological developments that lead to understanding the Earth's dynamic systems. Instructor: Baker, Glass, Klein, Murray. One course.

12. The Dynamic Oceans. NS, STS The oceans and their impact on the Earth's surface, climate, and society. Topics include seafloor evolution, marine hazards, ocean currents and climate, waves and beach erosion, tides, hurricanes/cyclones, marine life and ecosystems, and marine resources. Emphasis on the historical, society and economic roots of oceanography, the formulation and testing of hypotheses, quantitative assessment of data, and technological developments that lead to understanding of current and future societal issues involving the oceans. Includes a field trip at the Duke University Marine Laboratory. Required fee for trip. Instructors: Corliss, Glass, Murray. One course. C-L: Biology 53, Marine Science and Conservation

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


90FCS. Fossils and Climate Change. NS Study of the use of animal and plant fossils including geochemical analyses of fossils to understand past climates; review of invertebrate fossils in the laboratory. Climatic changes in both terrestrial and oceanic environments over time scales ranging from millions to hundreds of years. A three-day field trip to include fossil collecting on the North Carolina coastal plain and studying modern coastal environments and living invertebrates at the Duke University Marine Laboratory. Open only to students in the Focus Program. Instructor: Corliss. One course.


102. The Fluid Earth. NS, R Introduction to the dynamics of ocean and atmospheric circulations, with particular emphasis on the global climate cycle. Prerequisites: Mathematics 31 and 32, Physics 53L or consent of instructor. Instructor: Lozier. One course.


115. Waves, Beaches, and Coastline Dynamics. NS, STS Oceanographic and geologic processes responsible for the evolution of nearshore features; fluid motions of many time scales in the nearshore environment, including waves and currents. Conceptual basis for models of how fluid motions interact with the shape of the beach and bed in the surf zone,
giving rise to features such as beach cusps, bars, channels, and barrier islands. Various attempted engineering and coastal management solutions to the global retreat of shorelines. Instructor: Murray. One course.

119. Experiencing Geoscience. NS, QS, R Applications of the geosciences in the field and laboratory, and through quantitative approaches. Prerequisite: Earth and Ocean Sciences 11 or 12. Instructor: Staff. One course.

120. Environmental Geology. NS, STS A case history, field and lab exercise, and quantitative model approach to the role of geological materials and processes in environmental assessment studies. The quantitative and qualitative impact of rock type, faulting, folding, volcanism, weathering, erosion, flooding, and underground fluid flow on the human environment. An introduction to quantitative probabilistic hazard analysis and its application to establishing monetary cost/benefit ratios. The basics of engineering geology in environmental studies. Cases taken from current and past geological studies of environmentally sensitive sites. Consent of instructor required. Instructor: Staff. One course.

123. Hydrogeology. EI, NS, STS An overview of the hydrologic cycle and its impact on global climate and local environmental problems. Examines ethical dilemmas encountered in communicating environmental analysis to the public. Prerequisite: Mathematics 32 and Chemistry 22L or consent of the instructor. Instructor: Vengosh. One course.

125. The Future. NS, STS Introduction to the future as a continuation of the geological, biological, and technological evolution of the Earth. Topics include developments and trends in computation, the internet, nanotechnology, space exploration, artificial intelligence, robots and biotechnology and their effects in society. Prerequisite: Earth and Ocean Sciences 11 or 12. Instructor: Haff. One course.

126S. Field Methods in Earth and Environmental Sciences. NS, R, W Introduction to basic field methods used in the earth and environmental sciences. Field investigations focus on topics such as groundwater and surface water movements, soil chemistry and identification, topographic and geologic mapping, the atmosphere/soil interface, and plant identification and distributions. Design of a field investigation, collection of data to address a specific goal, and interpretation and reporting of the results. Emphasis on learning to report field results in the format of scientific publications. Visits to five local field sites. Open only to juniors and seniors. Instructor: Klein. One course. C-L: Earth and Ocean Sciences 224

130. Energy and the Environment. NS, SS, STS One course. C-L: see Environment 130

131. World Trade In Energy and Mineral Resources. EI, SS, STS One course. C-L: see Environment 131

151S. Global Environmental Change. NS Topics in the seminar will include climate change, earth surface alteration, prediction, water and carbon cycling, sea-level rise and coastal erosion, biodiversity, fossil fuels and energy resources, water resources, soil fertility, and human impact on coastal zone ecosystems. Instructor consent required. Instructor: Baker. One course.

155. Global Warming. NS, STS Broad, interdisciplinary course on the science of global warming, its predicted impact, and various policy and technology options that have been proposed to mitigate its effect. Includes a short introduction to climate theory and models, discussions on important greenhouse gas, and model projections for the twenty-first century and beyond. Instructor: . One course.

159. Fundamentals of GIS and Geospatial Analysis. NS, QS One course. C-L: see Environment 159; also C-L: Visual Studies 116B

168. Biogeography in an Australian Context. NS, STS One course. C-L: see Biology 101; also C-L: Environment 168

172. Field Exploration of the Geology of North Carolina. NS, STS Introduction to the geological history of North Carolina with an emphasis on active learning and field-based
inquiry. Class time serves as preparation and background for two one-day and one overnight weekend field trips. An introductory geology background is useful but not required. Instructor: Glass. Half course.


180S. Volcanology: Geology of Hawaii. NS, R Geology of volcanic processes and the benefits and hazards they present to society. Lectures, discussion and student presentations of independent research reports. Required field trip to Hawaii during spring break. Prerequisite: Earth and Ocean Sciences 11 recommended. Consent of instructor required. Instructor: Boudreau. One course.

187S. Marine Geology of South Florida. NS, R Spatial and temporal analysis of geology of south Florida. Includes class discussions, required spring break field trip to South Florida, trip presentation, post-trip research paper. Examination of shallow marine sedimentary environments including reefs, mudbanks, and mangrove forests and islands, and their ancient counterparts in rock outcrops and sediment cores. Prerequisite: Earth and Ocean Sciences 11 or 12, or consent of instructor. Instructor: Dwyer. One course.

189S. Senior Capstone Experience. NS, R, STS Senior capstone field trip course. Field location varies. Topics in geology, hydrology, biology, climate, and other environmental subjects as appropriate for field area, especially human impact on the earth and the role of earth scientists as observers and teachers of earth-system change. Course content partially determined by students. Prerequisites: Open only to senior Earth and Ocean Sciences majors. Department consent required. Instructor: Staff. One course.

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors by consent of director of undergraduate studies and supervising instructor. Instructor: Staff. One course. C-L: Marine Sciences

192. Research Independent Study. R See Earth and Ocean Sciences 191. Open only to qualified juniors and seniors by consent of director of undergraduate studies and supervising instructor. Instructor: Staff. One course. C-L: Marine Sciences

193. Independent Study. Directed reading or individual projects. Term paper required. Open only to qualified juniors and seniors by consent of director of undergraduate studies and supervising instructor. Instructor: Staff. One course. C-L: Marine Sciences

194. Independent Study. See Earth and Ocean Sciences 193. Term paper required. Open only to qualified juniors and seniors by consent of director of undergraduate studies and supervising instructor. Instructor: Staff. One course. C-L: Marine Sciences

195. Independent Study for Nonmajors. Individual research and reading in a field of special interest, under the supervision of a faculty member, resulting in a term paper containing significant analysis and interpretation of a previously approved topic at end of semester. Open to qualified juniors and seniors upon approval of the departmental faculty. Instructor: Staff. One course. C-L: Marine Sciences

202. Beach and Island Geological Processes. NS Field seminar on the evolution of beaches and barrier islands with emphasis on the interactions between nearshore processes and human development. Prerequisite: Earth and Ocean Sciences 115/215 or consent of instructor. Instructor: Murray. Half course. C-L: Marine Sciences

209S. Paleoclimate. NS, R Nature and mechanisms of climate variability throughout Earth history. Topics include general theory of climate, paleoclimate modeling and comparisons with observations, methodologies of reconstructing past climate variations, the observational record of paleoclimate extending from the Precambrian through the Ice Ages and
Holocene to present, and the impact paleoclimate on biotic evolution/paleogeography and human cultural history. Consent of instructor required. Instructor: Baker. One course.

210S. Paleoenvironmental Analysis. NS Methods of paleoenvironmental and paleoclimatic analysis. Includes radiometric and other methods of dating, stable isotopes, trace Elements, paleobiologic and other methods of reconstructing climate, hydrology and environment of the past. Also includes approaches to modeling paleoenvironmental data. Instructor: Baker. One course.

211. The Climate System. NS, R Components of the climate system: observed climate change, concept of energy balance, basic circulation of the atmosphere and ocean, introduction to climate models, sample applications of climate models, interactions between the atmosphere/ocean/and biosphere, land surface, cryosphere (snow and ice), and chemistry of the atmosphere. Prerequisite: consent of instructor. Instructor: Staff. One course.

212. Climate Change. NS, R, STS The Climate system, introduction to climate dynamics, patterns of climate variability, climate models. Greenhouse effect, carbon cycle, other external influences on climate, climate change and uncertainty, twentieth-century climate change, projections of future climate change due to greenhouse warming, potential for sudden changes. Aspects of changes include temperature, rainfall, patterns of variability, climate extremes, ocean changes, and sea level changes. Consent of instructor required. Instructor: Staff. One course.

214. Advanced Issues in Paleoclimatology. NS Major issues in paleoclimatology including: decadal-millennial climate variability, ice age climates, the deglaciation, nonglacial climates, Paleozoic climates, ice core studies, Snowball Earth, carbon dioxide, volcanism, abrupt climate change, modeling studies, climate and extinctions. Consent of instructor required. Instructor: Staff. One course.


216. Introduction to Fluid Dynamics. NS Conservation equations for mass, momentum and heat, with an emphasis on large temporal and spatial scales; application to the earth, ocean, and environmental sciences. Some background in differential equations highly recommended. Instructor: Lozier. One course.

220. Water Contamination. NS, STS Geochemistry of water contamination, focusing on behavior of inorganic constituents dissolved in rainwater. Contaminants produced by human interactions with the environment, such as industry and construction. Salinization and desalinization. Prerequisites: Chemistry 22L. Instructor: Vengosh. One course.

226S. Water Forum Speaker Series. NS, STS Seminar including visiting scholars covering a broad array of issues on water including water quality, hydrogeology, biogeochemistry, water management, water treatment, ecology, water economy, and water policy and law at both the national and international levels. Instructor: Vengosh. One course.

236S. Lithosphere Plate Boundaries. NS Plate tectonics and the geological and geophysical expression of orogenic belts, spreading centers, transform faults, subduction zones. Prerequisite: Earth and Ocean Sciences 101L or consent of instructor. Instructor: Staff. One course.


242S. New Perspectives and Methods in Surface Process Studies. NS Nonlinear dynamics and related approaches to understanding, modeling, and analyzing physical...
systems, with emphasis on applications in geomorphology. Consent of instructor required. Instructor: Murray. One course.

**243S. Landscape Dynamics. NS** How landscape changes with time. The dynamics and mechanisms of earth surface processes underlying landscape change. Hillslope, fluvial, marine, glacial, volcanic, tectonic and aeolian processes. Reading and discussion of primary literature; several field trips to Duke Forest. Prerequisite: Earth and Ocean Sciences 11 or consent of instructor. Instructor: Haff and Pratson. One course.

**251S. Global Environmental Change. NS, R** Topics in the seminar will include climate change, earth surface alteration, prediction, water and carbon cycling, sea-level rise and coastal erosion, biodiversity, fossil fuels and energy resources, water resources, soil fertility, human impact on coastal zone ecosystems. Prerequisite: consent of instructor. Instructor: Baker. One course.

**269. Thermodynamics of Geological Systems. NS** Introductory thermodynamics applied to geologic problems through understanding of phase equilibrium. Prerequisites: Earth and Ocean Sciences 101L; and Mathematics 32 or consent of instructor. Instructor: Boudreau. One course.

**272. Biogeochemistry. NS, STS** One course. C-L: see Biology 272

**273S. Analytic Techniques. NS** An introduction to advanced analytic procedures used in the earth sciences: such as electron microbeam techniques (scanning electron microscopy, electron microprobe analysis) and plasma emission/absorption spectroscopy. Consent of instructor required. Instructors: Boudreau and Klein. One course.

**275S. Mineral Resources. NS** Introduction to the mineralogy, geological setting, and genesis of metallic and non-metallic deposits (gold, copper, iron, aluminum, gypsum, phosphates, diamonds, e.g.). Includes methods of mineral exploration and exploitation, and the environmental consequences of utilizing mineral resources. An introductory geology course background useful but not required. Instructor: Boudreau. Variable credit.


**THE MAJOR**

The Division of Earth and Ocean Sciences offers one A.B. degree and one B.S. degree.

**For the A.B. Degree**

The A.B. degree in earth and ocean sciences is designed as a flexible major for those students interested in how the earth, atmosphere and oceans work. The major is intended to provide a general knowledge of scientific issues that shape and control the environment in which we live. It is not intended for students who plan to pursue advanced education in the earth and ocean sciences, or to become professional geologists or environmental scientists.

Required courses include Earth and Ocean Sciences 11, or 12, plus any six earth and ocean sciences courses of which five must be 100 level or higher, plus three additional 100-level or higher courses in either earth and ocean sciences or related fields (physics, mathematics, biology, biological anthropology and anatomy, environment), as approved by the director of undergraduate studies.

**Concentration in Natural History.** Students may elect to complete the requirements in the area of Natural History; intended for students interested in an integrative study of topics selected from ecology, botany, zoology, anthropology, history, hydrology, geology, oceanography, and the environment. For information on this area of concentration see the director of undergraduate studies.
For the B.S. Degree

The B.S. degree provides a background for subsequent graduate work for those who wish to follow an academic or professional career track in the earth and ocean sciences.

Prerequisites. Earth and Ocean Sciences 11 and 12; Chemistry 21L and 22L; Mathematics 31L and 32L; Physics 53L (or Physics 51L); Biology 25L.

Major requirements. Earth and Ocean Sciences 101, 102, 103, and 107, plus five additional earth and ocean sciences courses at the 100 level, including one field-oriented class. Up to two courses from a related field (biology, chemistry, physics, environment, or mathematics) may be substituted with the approval of the director of undergraduate studies.

Marine Science

An exciting area in earth and ocean sciences is the study of the marine realm. Majors in earth and ocean sciences may fulfill elective requirements with courses in marine science by studying at the Duke Marine Laboratory on the coast in Beaufort, NC, which often includes fieldwork excursions to other areas of the world (e.g., Hawaii, Trinidad, Singapore, Bermuda). Approved courses include: Marine Ecology; Biological Oceanography; Analysis of Ocean Ecosystems; Marine Invertebrate Zoology (see full course listings at: www.nicholas.duke.edu/marinelab/programs). Students typically also perform a research Independent Study project on a topic of interest supervised by a faculty member of the Marine Laboratory.

Graduation with Distinction

The Division of Earth and Ocean Sciences through Trinity College offers Graduation with Distinction through successful completion of a student research project. A candidate for Graduation with Distinction in the earth and ocean sciences must have a divisional grade point average of 3.1 at the beginning of the project to qualify for nomination. The student will apply for consideration for Graduation with Distinction by the end of his or her junior academic year by writing a letter of intent to the director of undergraduate studies describing the project. The student must solicit a committee of three faculty members who will review the student's record and decide to admit or reject the application and oversee the project. The student will normally do the work as part of an independent study course (Earth and Ocean Sciences 191, 192). The project will consist of an original piece of scientific research which will be summarized by a written report in the style of a scientific publication. The student will also make an oral presentation to students and faculty of the division before the end of classes of the student's final semester. The decision on granting Graduation with Distinction will be made by a vote of the student's project committee, with a majority in favor needed for Graduation with Distinction. Graduation with Distinction may be awarded in three levels: distinction, high distinction, and highest distinction. The decision on level of distinction will be made by majority vote of the student's project committee.

THE MINOR

The Division of Earth and Ocean Sciences offers an option for a minor in earth and ocean sciences.

Minor Requirements. Earth and Ocean Sciences 11, 12, plus any four additional earth and ocean sciences courses, of which three must be 100-level or higher.

TEACHER CERTIFICATION

A major in the Division of Earth and Ocean Sciences who is interested in teaching in secondary schools is encouraged to earn a comprehensive science teaching certificate in addition to the bachelor's degree. The teaching certificate, which is earned by fulfilling requirements prescribed by the state of North Carolina, is generally accepted in most of the fifty states by reciprocal agreement. In addition to completion of any of the earth and ocean sciences major tracks as described above (the A.B. option is particularly suited for those interested in a teaching certificate), the requirements for the comprehensive science
teaching certificate include coursework in biology, chemistry, physics, an appropriate course in psychology, and several courses in education. The last semester of the senior year is devoted to the student-teaching block, including two special, accelerated courses and ten weeks of full-time teaching and observation in the schools, working with a certified teacher and with Duke faculty. Anyone considering secondary school teaching should contact the Program in Education as soon as possible.

**Economics (ECON)**

Professor Nechyba, Chair; Associate Professor of the Practice Connolly, Director of Economics Center for Teaching; Assistant Professor of the Practice Rasiel, Director of Undergraduate Studies; Associate Professor of the Practice Fullenkamp, Associate Director of Undergraduate Studies; Professors Anton, Bansal, Bollerslev, Burnside, Clotfelter, Cohen, Cook, Darity, De Marchi, Gallant, Goodwin, Grabowski, Graham, Hoover, Hotz, Hsieh, Kelley, Kimbrough, Kramer, Kranton, Kuran, Ladd, Lewis, McElroy, Munger, Nechyba, Schmitt-Grohé, Sloan, Tauchen, Taylor, Thomas, Tower, Uribe, Viswanathan, and Weintraub; Associate Professors Abdulkadiroglu, Arcidiacono, Bayer, Conrad, Fang, Hamilton, Khan, Pfaff, Peretto, Rossi, Rubio-Ramirez, Timmins, Vigdor and Yildirim; Assistant Professors Ananat, Bellemare, Beresteau, Conitzer, Ellickson, Khwaja, Leventoglu, Lopomo, Ridley, Rigotti, Smith, Sweeting, Tarozzi, and Weinke; Professors Emeriti Blackburn, Kreps, Tremblay, Vernon and Wallace; Research Professors Becker, Darity, and Toniolini; Professor of the Practice Leachman; Associate Professors of the Practice Connolly and Fullenkamp; Assistant Professor of the Practice Rasiel

A major or minor is available in this department. Economics courses develop the critical and analytical skills essential for understanding economics and institutions, in both their contemporary and historical settings. Although no particular vocational or professional goal is emphasized, these courses provide the academic background necessary for positions in industry, for work in many branches of government service, for law school, and for graduate study in business administration, economics, and the social sciences.

Students planning to do graduate work in economics are advised to take as many of the following courses in mathematics (listed in preferential order) as their schedules permit: Mathematics 103, 104, 131, and 139.

**1A. Introductory Macroeconomics.** Credit for Advanced Placement on the basis of a score of 4 or 5 on the Advanced Placement Macroeconomics examination. One course.

**1D. Economic Principles.** SS Basic economic concepts such as demand and supply, markets and prices, equilibrium, and market failure. Inflation, unemployment, trade, economic growth and development. Different macroeconomic perspectives on issues of monetary and fiscal policy. Emphasis on public policy issues and the logic behind the economic way of thinking. For freshmen; upperclassmen by consent of instructor. Instructor: Kelley or Leachman. One course.

**2A. Introductory Microeconomics.** Credit for Advanced Placement on the basis of a score of 4 or 5 on the Advanced Placement Microeconomics examination. One course.

**49S. First-Year Seminar.** Topics vary each semester offered. Instructor: Staff. One course.

**50. Duke-Administered Study Abroad: Special Topics in Economics. CCI** Topics differ by section. Instructor: Staff. One course.

**51D. Economic Principles.** SS Basic microeconomic concepts such as demand and supply, market structures and pricing, market efficiency and equilibrium. Macroeconomic concepts such as inflation, unemployment, trade, economic growth and development. Different perspectives on issues of monetary and fiscal policy. Emphasis on public policy issues and the logic behind the economic way of thinking. Open to all students. Instructor: De Marchi, Fullenkamp, Kelley, or Leachman. One course.
55D. Intermediate Economics I. SS Introduction of the concepts of preferences and technologies. Intermediate, non-calculus based development of the theory of demand, supply and competitive equilibrium from individual preferences and technologies. Income and substitution effects, uncompensated demand and marginal willingness to pay. Conditions under which competitive markets result in efficient outcomes. Conditions under which government policy has the potential to increase efficiency. Tension between economic efficiency and different notions of equity. Intended as replacement for Economics 2D and 52D. Prerequisites: Economics 1A and 2A or Economics 1D or 51D; and Mathematics 25 and 26, or Mathematics 31, 32, 41, 102, 103 or higher level math. Instructor: Hotz, Nechyba, Rasiel, or Timmins. One course. C-L: Health Policy, Politics, Philosophy, and Economics


95S. Selected Topics In Economics. Topics vary each semester offered. Instructor: Staff. One course.

99FCS. Focus Program Topics in Economics. SS Open only to students in the Focus Program. Topics vary each semester offered. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Economics. CCI Topics differ by section. Prerequisite: Economics 55D. Instructor: Staff. One course.

100S. Duke-Administered Study Abroad: Advanced Special Topics in Economics. CCI Seminar version of Economics 100. Topics differ by section. Prerequisite: Economics 55D.

103. Prisoner's Dilemma and Distributive Justice (A, C-N). EI, SS One course. C-L: see Political Science 103; also C-L: Philosophy 146, Information Science and Information Studies, Politics, Philosophy, and Economics

104. Politics, Philosophy, and Economics Capstone (A, C-N). R, SS One course. C-L: see Political Science 165; also C-L: Philosophy 165, Politics, Philosophy, and Economics

105D. Intermediate Economics II. QS, SS Calculus-based generalization of the theory of demand and supply developed in Economics 55D. Individual behavior in environments of risk and uncertainty. Introduction to game theory and strategic interaction. Adverse selection, moral hazard, non-competitive market structures, externalities, public goods. Intended to replace Economics 149 beginning Spring 2003. Prerequisites: Economics 55D; Mathematics 102 or Mathematics 103 or any higher-level mathematics course with Mathematics 103 as a prerequisite. Students who matriculated prior to Fall 2007, may substitute successful completion (80%) of EcoTeach Center Math Test for Mathematics 102 or 103. Instructor: Arcidiacono, Fullenkamp, Leventoglu, Taylor, or Yildirim. One course.

110D. Intermediate Economics III. QS, SS, STS Intermediate level treatment of macroeconomic models, fiscal and monetary policy, inflation, unemployment, economic growth. Intended to replace Economics 154 beginning Fall 2003. Prerequisite: Economics 55D; and Economics 105D may be taken as co-requisite. Instructor: Burnside, Connolly, Schmitt-Grohè, or Uribe. One course.

112. Engineering Systems Optimization and Economics. SS One course. C-L: see Engineering 115
122D. American Business History. CCI, CZ, R, W One course. C-L: see History 158AD; also C-L: Markets and Management Studies

130S. Economics of Creative Goods. R, SS Creative industries (especially the arts, entertainment) often distinguished by peculiarities of product (for example, non-durable), by special nature of financing and contracting (for example, option contracts), and by challenges they present to conventional analysis of pricing and consumption. Research report required. (Taught only in the Duke-in-Venice Program.) Prerequisites: Economics 55D or instructor's consent. Instructor: De Marchi. One course.

132. Introduction to Economic History. CCI, CZ, SS A survey of Western economic history: population, production, exchange, and institutions; from antiquity to the present. Prerequisite: Economics 55D. Instructor: Craig or staff. One course. C-L: History 130B

137. Philosophy of Economics. EI, SS One course. C-L: see Philosophy 145

138. The International Economy, 1850-2000: From Globalization to Globalization. CCI, CZ, SS Developments in the international economy (trade, migrations, capital movements), their causes and impact, against the background of "modern economic growth." The rapid integration of the Atlantic economy from the 1850s to the early 1910s, the subsequent "globalization backlash" (war, great depression and war again), and the slow reconstruction of international economic networks since 1945. Comparison of the current second globalization with the first one that came to an abrupt end in August 1914. Prerequisites: Economics 1A and 2A or Economics 1D or 51D; and Mathematics 25 and 26, or Mathematics 31, 32, 41, 102, 103 or higher level math. Instructor: Toniolo. One course. C-L: History 153B

139D. Introduction to Econometrics. QS, R Data collection, estimation, and hypothesis testing. Use of econometric models for analysis and policy. Prerequisites: Economics 55D; and Mathematics 32, 41, 102, 103, or higher; and Statistics 103, 104, 113, or 114 or Mathematics 135 or 136. Instructor: Ellickson, Sweeting, or Tarozzi. One course. C-L: Information Science and Information Studies

141. Applied Econometrics in Macroeconomics. QS, R Basic econometric methods useful in empirical economic research and forecasting. Topics include multiple regression analysis under nonstandard conditions; probit, logit, and other limited dependent variables; count data; simultaneous equation systems; and basic models with panel data. Macroeconomic applications. Prerequisite: Economics 139D or 239D. Instructor: Rossi or staff. One course.

142. Applied Econometrics in Microeconomics. QS, R SS Empirical research in microeconomics, with emphasis on three main sub-fields: labor economics, public economics, and industrial organization. Focus on current empirical research in these areas and student independent analysis of current research using statistical software. Prerequisite: Economics 139D or 239D. Instructor: Beresteanu. One course.

143. The Art Market. ALP, R, SS An historical and analytical study of the way art objects have been produced and marketed. Peculiarities of the product, applicable sales techniques, and pricing procedures. Attention to the role of dealers, auctioneers, the art of criticism and formation of preferences, and innovation. Comparative and longitudinal examinations of the evolution of practices, institutions, and the regulatory environment in art markets. Prerequisite: Economics 55D. Instructor: De Marchi. One course. C-L: Art History 157

146. Adam Smith and the System of Natural Liberty. SS, STS  The writings of Adam Smith, including close readings of The Wealth of Nations and The Theory of Moral Sentiments, and selections from Mandeville, Hutcheson, Hume, Quesnay, Turgot, and Bentham. Focus on eighteenth-century views on the nature of society and the origins of prosperity, the luxury debate, and links between natural philosophy (including medical thought), and moral philosophy. Economics 148 desirable prior to taking this course. Prerequisite: Economics 55D. Instructor: De Marchi. One course. C-L: History 146A, International Comparative Studies, Politics, Philosophy, and Economics

147. Women in the Economy. CCI, EI, R, SS  Economics of gender including the status of women in the labor market; feminist economic theories; ethical considerations of gender-based inequalities; gendered division of labor within the family and between the household and labor market. Situation of women in developing countries undergoing transition to market economies; gender-related measurements and indicators; explanations and remedies for female/male occupational segregation and wage differentials. Prerequisite: Economics 55D. Instructor: Hagy, McElroy, or staff. One course. C-L: Women's Studies 147


150. The Uses of Economics. CZ, R, SS, STS, W  The various ways economics is used in contemporary society: in the scholarly community, government, private sector, civil society, other disciplines, and popular culture. Readings in original texts and interpretative commentaries. Combined with Economics 148, this course may yield a written product suitable for submission for graduation with distinction. Prerequisite: Economics 55D. Instructor: Goodwin. One course.

151. Basic Finance and Investments. QS, R, SS  A survey of investments and corporate finance. The basic financial instruments, how they are used, traded, and priced; the financial decision-making processes of the firm: project selection, dividend, and debt policy. Does not count for B.S. degree. Economics 151 is not open to students who have taken Economics 157, 158, 181, and/or 200ES. Only Economics 151 or Economics 181 (not both) may be taken for credit within the major. Prerequisites: Economics 105D; and Statistics 103, 104, 113, 114, or Mathematics 135 or 136. Instructor: Fullenkamp. One course. C-L: Markets and Management Studies, Information Science and Information Studies

153. Monetary Economics. SS, STS  The operations of commercial and central banking and non-banking financial institutions and instruments in the United States, determination of monetary aggregates and interest rates, the financial impacts of Treasury operations, and the linkages from Federal Reserve actions to price level, employment, economic growth, and balance of payments objectives. Coverage of models of monetary economics (for example the Cagan money demand function, cash in advance models). The dynamics and real effects of inflation. Prerequisite: Economics 110D. Instructor: Leachman, Kimbrough, Schmitt-Grohé, Uribe, or Weinke. One course.


156. Health Economics. SS, W  Economic aspects of the production, distribution, and organization of health care services, such as measuring output, structure of markets, demand for services, pricing of services, cost of care, financing, mechanisms, and their impact on the
relevant markets. Prerequisite: Econ 105D or PubPol 110 or 128. Instructor: Falba, Sloan, or staff. One course. C-L: Public Policy Studies 156, Health Policy

157. Financial Markets and Investment. QS, SS The structure and workings of financial markets. Topics include risk-return relationships, aspects of portfolio selection, the capital asset pricing model, the arbitrage pricing theory, fixed income analysis, and aspects of derivatives. Prerequisites: Economics 105D; Economics 110D; and Statistics 103, 104, 113 or 114, or Mathematics 135 or 136. Instructor: Bollerslev, Rasiel, or staff. One course. C-L: Visual Studies 112A

158. Applied Financial Economics. QS, R, SS Tools mastered in microeconomics, macroeconomics, calculus, algebra, and statistics applied to problems in financial economics and used to empirically investigate financial data using IBM-compatible PCs. Application of asset pricing theories to control risks. Students working in teams develop their own portfolio management strategies for common stocks using various optimization techniques, tested with out-of-sample financial data. Prerequisites: Economics 105D; Economics 110D; and Statistics 103, 104, 113 114, or Mathematics 135 or 136. Instructor: Staff. One course.

158D. Applied Financial Economics. QS, R, SS Same as Economics 158 but has a discussion section. Prerequisites: Economics 105D; Economics 110D; and Statistics 103, 104, 113 114, or Mathematics 135 or 136. Instructor: Staff. One course.


163. Economics of the Environment. SS, STS The role of the environment in the theory and practice of economics. Topics include ways in which markets fail to efficiently allocate resources in the presence of pollution, along with the array of policies regulators used to correct those failures; the empirical techniques used by economists to put values on environmental commodities; and an examination of questions related to everyday environmental issues, particularly those confronting the developing world. Prerequisite: Economics 105D Instructor: Timmins. One course. C-L: Environment 163, Health Policy


164. The History of Modern Macroeconomics from Keynes to the Present. SS, W Examination of key developments in macroeconomics from the 1930s through the present. Case studies of the evolution of macroeconomics in political and social context. Topics include the theory of unemployment in the Great Depression; growth theory and the rise of business cycle modeling in the aftermath of World War II; the trade-off between inflation and unemployment in the 1950s and 1960s; the debate over monetarism in the age of stagflation; and the rise of the New Classical Macroeconomics in its aftermath. Instructor: Hoover. One course.

165. American International Economic Policy. CCI, SS, STS, W Topics include United States trade policies and protectionism, the North American Free Trade area, trade and economic relations with industrialized countries, policies toward developing countries and
multilateral institutions, macroeconomic policy coordination, and relations with Europe. Economics majors may not count both Economics 165 and 167 or their crosslists toward major requirements. Prerequisite: Economics 55D. Instructor: Leachman or staff. One course. C-L: Public Policy Studies 165, Markets and Management Studies


167. Multinational Management. SS Impact of national economic, political, and legal environments on managerial issues, such as the dynamics of the organization, coordination of employees, administration, and shareholder rights. (Taught only in Duke-In-France Program.) Prerequisite: Economics 105D. Instructor: Staff. One course.

168. Asset Pricing and Risk Management. QS, SS Pricing models for major asset classes including bonds and equities, as well as derivative securities including futures and options on equity indices, currencies and commodities. Portfolio risk analysis, speculation and hedging techniques. Prerequisites: Economics 105D; and Statistics 103, 104, 113, 114, or Mathematics 135 or 136. Instructor: Rasiel. One course.


180. Law and Economics. EI, QS, SS A qualitative and quantitative introduction to economic analysis of legal issues and legal reasoning. Case studies in accident law, product liability, and the value of life. Other topics include contracts, property, affirmative action, civil procedure, and the economics of criminal behavior. Some models examined include a calculus-based approach. Prerequisite: Economics 105D. Instructor: Graham, Knoeber, or staff. One course.

181. Corporate Finance. QS, R, SS Major corporate decisions from the perspective of the firm with an emphasis on the interaction of the firm with financial markets: quantitative project evaluation for investment, choice between borrowing and issuing stock, dividend policy, organizational form (for example, mergers and acquisitions). Introduction to financial markets: asset pricing, issuing stocks, analyzing financial performance using relative value tools, and options. Prerequisites: Economics 105D and Economics 139D. Instructor: Fullenkamp. One course. C-L: Markets and Management Studies

182. Financial Accounting. QS, SS The accounting model of the firm, transaction analysis, the use of accounting information by management. Topics include procedures to process accounting data, income determination, financial statement analysis, cost behavior, budgeting, and short-run decisions. The construction and interpretation of corporate financial reports. How a firm's performance is presented in the income statement, and how different revenue and expense recognition practices affect this performance measure. Does not count for economics major or minor requirements. Instructor: Skender. One course.


187. Public Finance. QS, SS Economic aspects of the allocative and distributive role of government in the economy, the incidence and efficiency of taxation, the effects of taxation
on behavior, and analysis of major government spending programs. Prerequisite: Economics 105D. Instructor: Falba or staff. One course. C-L: Public Policy Studies 186

188. Competitive Strategy and Industrial Organization. QS, SS Foundations of the field of industrial organization, including the theory of the firm, models of competition, market structure, pricing and dynamic models. Emphasis on theory with support from specific industries, including telecommunications, retail and airlines. Prerequisite: Economics 105D. Instructor: Beresteanu, Khan, or Yildirim. One course. C-L: Markets and Management Studies

189. Business and Government. QS, SS Public policies which most directly affect the operation of competition in the business world. The economic basis for an evaluation of antitrust policy, public utility regulation, and public enterprise. Prerequisite: Economics 55D; and Statistics 103, 104, 113 or 114 or Mathematics 135 or 136 or consent of instructor. Instructor: Staff. One course. C-L: Public Policy Studies 189, Markets and Management Studies


191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Prerequisite: Economics 55D. Instructor: Staff. One course.

192. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Consent of instructor and director of undergraduate studies required. Prerequisite: Economics 55D. Instructor: Staff. One course.

193. Research Independent Study. R Same as Economics 191, but for second-semester juniors and seniors. Consent of director of undergraduate studies required. Prerequisite: Economics 105D; and Economics 110D. Instructor: Staff. One course.

194. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Consent of instructor and director of undergraduate studies required. Prerequisite: Economics 105D and Economics 110D. Instructor: Staff. One course.

195. Selected Topics in Economics. Topics vary by semester. Consent of instructor may be required for specific section offerings. Prerequisites: Economics 105D and 110D. Instructor: Staff. One course.

195S. Selected Topics in Economics. Seminar version of Economics 195. Consent of instructor may be required for specific section offerings. Prerequisites: Economics 105D and 110D. Instructor: Staff. One course.

196. Selected Topics in Economics. Topics vary by semester. Consent of instructor may be required for specific section offerings. Instructor: Staff. One course.

196S. Selected Topics in Economics. Seminar version of Economics 196. Consent of instructor may be required for specific section offerings. Instructor: Staff. One course.

197S. Economic Science Studies. SS, STS Application of techniques of science and technology studies to problems in the history, philosophy, methodology, and sociology of economics. Addresses modern economics as an illustrative case of issues arising in Studies of Scientific Knowledge. What counts as "fact" in economics? Who decides, and by what processes of negotiation? Does accepting that knowledge in economics is a construct reduce the usefulness of that knowledge and affect the notion of progress in economic science? Why

252 Courses and Academic Programs
has mathematical economics enjoyed such success in recent decades? Close readings in texts
across the sciences and in modern economics, and the history of mathematics, culminating
in a research project. Prerequisite: Economics 55D. Instructor: Weintraub. One course.

For Advanced Undergraduates and Graduates

207. Models of Conflict and Cooperation. SS Cooperative and noncooperative game
theory with applications to trading, imperfect competition, cost allocation, and voting.
Prerequisite: Economics 105D. Instructor: Graham. One course.

207S. Models of Conflict and Cooperation. QS, SS Cooperative and non-cooperative
game theory with applications to trading, imperfect competition, cost allocation, and voting.
Extensive use of quantitative models requiring familiarity with multivariate calculus,
optimization, and probability theory. Prerequisite: Economics 105D. Instructor: Graham.
One course.

208S. Economics of the Family. QS, R, SS, W Economic functions of families including
home production gains from marriage, the demand for children, marriage and divorce, child
support and alimony, labor supplies of women and men, the distribution of resources within
families (‘rotten kid theorems’ and cooperative and noncooperative games). Applications to
marriage and divorce law, day care, United States welfare policy, mortality, and farm
efficiency in developing nations. Research project required. Prerequisites: Economics
105D; Economics 139D; and Statistics 101, 103, 104, 112, 113 or 114, or Mathematics 135
or 136. Instructor: McElroy. One course. C-L: Women's Studies 208S, Children in
Contemporary Society

209S. Global Issues in Population and Development. CCI, EI, R, SS Relationship of
population growth to economic development and to natural resource and environmental
pressures. Causes and impacts of population change, including economic models of fertility,
mortality, marriage, and migration. An overlay of comparative cultural factors that affect
decision-making, with particular attention to impacts of gender. Research project required.
Consent of instructor required. Prerequisites: Economics 105D; and Economics 110D.
Instructor: Kelley. One course. C-L: Public Policy Studies 209S

218. Macroeconomic Policy and International Finance. SS One course. C-L: see Public
Policy Studies 218

219S. Economic Problems of Underdeveloped Areas. QS, R, SS, W Assessment of the
economic determinants of development with consideration given to demographic, political,
and public policy impacts. Emphasis on student-directed research that includes statistical
data analysis and quantitative techniques to expose development issues, across countries and
over time. Prerequisites: Economics 105D; and Economics 110D; and consent of instructor
required. Instructor: Kelley. One course. C-L: International Comparative Studies

220. Time Series Econometrics. SS Empirical research in macroeconomics and
international finance, providing students with a series of econometric tools for empirical
analysis of time-series and an introduction to the current empirical research in
macroeconomics, international finance, and forecasting. Small project and simple empirical
research required. Consent of instructor required. Instructor: Rossi. One course.

221S. The Society and Economy of Europe, 1400 - 1700. CCI, CZ, R One course. C-L:
see History 221AS; also C-L: Medieval and Renaissance Studies 220AS

225. Mathematical Finance. QS One course. C-L: see Mathematics 215

244S. Art and Markets. ALP, CCI, R, SS One course. C-L: see Visual Studies 252AS; also
C-L: Medieval and Renaissance Studies 245S

251S. Regulation of Vice and Substance Abuse. R, SS, W One course. C-L: see Public
Policy Studies 251S; also C-L: Health Policy

261. Evaluation of Public Expenditures. SS One course. C-L: see Public Policy Studies
261; also C-L: Environment 272, Health Policy

265S. International Trade. R, SS International trade, investment and migration, commercial policy, and the political economy of trade. Prerequisites: Economics 105D; and Economics 110D. Instructor: Kimbrough or Tower. One course. C-L: Canadian Studies


267S. Global Responses to the Rise of China. CCI, SS One course. C-L: see Sociology 290S

268S. Current Issues in International and Development Economics. SS, W Issues of income distribution within and between countries, vehicles for growth, regional development, the role of politics in economic policy, multinational institutions. Cross-country and cross-time comparisons. Emphasis on individual research projects. Prerequisites: Economics 105D; and Economics 110D. Instructor: Tower. One course. C-L: International Comparative Studies 201BS, Canadian Studies

269S. Social Change, Markets, and Economy in China. CCI, SS One course. C-L: see Sociology 293S

270. Resource and Environmental Economics. SS One course. C-L: see Environment 270; also C-L: Public Policy Studies 272, Health Policy

272. Economic Analysis of Resource and Environmental Policies. SS One course. C-L: see Environment 271

284S. Financial Development and History. CCI, SS Development of financial institutions and markets across civilizations and time. The political, economic, and institutional factors which influenced that evolution and the theoretical implications for contemporary emerging markets. Prerequisite: Economics 151, 181 or consent of instructor. Instructor: Toniolo. One course.

286. Economic Growth and Development Policy. SS, STS, W One course. C-L: see Public Policy Studies 286; also C-L: International Comparative Studies, Global Health

291. European Economic History. CCI, SS Covers period since the late eighteenth century. Topics include: modern economic growth in historical perspective, the industrial revolution, the standard-of-living debate, patterns of European growth (with case studies of France, Germany, Italy, and Russia), the classical gold standard, the economic consequences of World War II, the great depression, postwar reconstruction, and the European "miracle" of the 1950s and 1960s. Prerequisites: Economics 105D; and Economics 110D. Instructor: Toniolo. One course.

295. Selected Topics in Economics. SS Instructor: Staff. One course.

295S. Selected Topics in Economics. SS Seminar version of Economics 295. One course.

296. Selected Topics in Economics. SS Instructor: Staff. One course.

296S. Selected Topics in Economics. SS Seminar version of Economics 296. Instructor: Staff. One course.

Honors Seminars
Courses intended for students pursuing an honors thesis in economics and designed to provide exposure to current research in economics, guidance toward independent research, and a deepening of a chosen line of research with the aim of shifting students from consumption of, to active participation in, research. More information provided in Departmental Graduation with Distinction section after this economics courses listing.
198S. Honors Seminar I. R, SS, W First course in two-semester honors sequence. Guided research on student-selected topics. Iterative presentations and writing assignments on current literature related to student-selected topics and of student-developed research proposals. Course requires completion of research proposal suitable for write-up as honors thesis in Economics 199S. Prerequisites: Economics 105D and 110D. Instructor: Connolly, Hagy, or Staff. One course.

199S. Honors Seminar II. R, SS, W Following Economics 198S, iterative forum for conducting original research culminating in a substantive research project suitable for submission as an honors thesis. Prerequisites: Economics 105D and 110D. Consent of instructor required. Instructor: Connolly, Hagy, or staff. One course.

201AS. Honors Junior Research Workshop in Macroeconomics. QS, R, SS Guided research in macroeconomics. Development of individual research topic from within three applied areas to vary with instructor's interest. Topics drawn from areas in macroeconomics and open economy macroeconomics including monetary policy, government spending and debt policy, current account dynamics, exchange rate behavior, consumption and investment spending. Requires substantive research project. Prerequisites: Economics 105D and 110D. Consent of instructor required. Instructor: Kimbrough. One course.

201FS. Honors Junior Research Workshop in Finance. QS, R, SS Application of tools and techniques developed in statistics and economics to research into the structure of financial markets at the very high frequencies. Topics include testing for jumps in financial prices, the role of high frequency micro-structure noise that masks fundamental price, the importance of macroeconomic news announcements, the roles of various asymmetries such as volatility feedback, and interactions across financial markets at the very high frequency. Research project analyzing large data samples. Prerequisites: Mathematics 103, Statistics 103, Economics 105D, 110D, 139D and one finance course (Economics 157, 158, 181). Economics 139D and finance may be taken concurrently. Consent of instructor required. Instructors: Bollerslev and Tauchen. One course.

201HS. Honors Junior Research Workshop: History of Economics and Economic Thought. CZ, R, SS Discussion of research in history of economic thought or economic history, including: examination of archival materials, biographical writings and oral testimony on the history of economics; relationship between macro and microeconomics and theoretical and empirical macroeconomics; interaction of economics with other disciplines and in the construction of public policy. Students specify a topic for thesis research, identify an adviser, and conduct a relevant literature review. Prerequisites: Economics 105D and 110D. Consent of instructor required. Instructor: Goodwin. One course.

201IS. Honors Junior Research Workshop in Microeconomics. QS, R, SS Introduction to original research in microeconomic theory. Development of substantive individual research proposal, including literature review and building of theoretical model to capture salient aspects of relevant issue in microeconomics. Topics may include competitive strategies by firms, incentive mechanisms in organizations, campaign strategies in elections, collective decision-making in committees, and fundraising by charities. A strong background in calculus and intermediate microeconomics required. Familiarity with game theory (e.g. Nash's equilibrium) highly recommended. Prerequisite: Economics 105D. Consent of instructor required. Instructor: Yildirim. One course.

202IS. Honors Senior Workshop in Microeconomics. QS, R, SS Continuation of Economics 201IS. Prerequisites: Economics 201IS and Mathematics 103 or 105 and Statistics 103. Consent of instructor required. Instructor: Yildirim. One course.

202AS. Honors Senior Research Workshop in Macroeconomics. QS, R, SS, W Continuation of Economics 201AS. Prerequisites: Economics 201AS and Mathematics 102 or 103 and Statistics 103. Consent of instructor required. Instructor: Kimbrough. One course.
202FS. Honors Senior Research Workshop in Finance. QS, R, SS Continuation of Economics 201FS. Pre-requisites include: Mathematics 103, Statistics 103, Economics 105D, 110D, 139D, 201FS, and one finance course (Economics 157, 158, 181). Consent of instructor required. Instructor: Bollerslev or Tauchen. One course.

202HS. Honors Senior Research Workshop: History of Economics and Economic Thought. CZ, R, SS Continuation of Economics 201HS. Prerequisite: Economics 201HS. Consent of instructor required. Instructors: DeMarchi, Goodwin, Hoover, or Weintraub. One course.

204. Honors Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is the production of an honors thesis, containing significant analysis and interpretation of a previously approved topic. Prerequisites: Economics 105D and Economics 110D. Consent of instructor and Director of Undergraduate Studies required. Instructor: Staff. One course.

THE MAJOR
For the A.B. Degree

Prerequisites: Economics 1A and 2A; or 1D or 51D. Economics 55D. Mathematics 32 and 102; or 103 or any higher-level mathematics course with Mathematics 103 as a prerequisite. Statistics 103, Statistics 104/Mathematics 135, Statistics 112, Statistics 113 or Statistics 114/Mathematics 136. Statistics is a prerequisite for Economics 139D and many other 100-level economics courses and therefore should be taken by the fall of sophomore year. Prerequisites for the major, as well as requirements, may not be taken pass/fail.

Requirements: Three core courses: Economics 105D, Economics 110D, and Economics 139D. Economics 139D should be completed no later than the spring of sophomore year since most 100-level economics courses have Economics 139D as a prerequisite. Five electives chosen from any additional non-core economics courses at the 100 level or above, with the exception of Economics 151, Economics 182, and Economics 888. For students entering in Fall 2002 or later, at least one of these five courses must be in either economic history or the history, philosophy or sociology of economics (Economics 122D/History 158AD, Economics 130S, Economics 132/History 130B, Economics 137/Philosophy 145, Economics 138/History 153B, Economics 146/History 146A, Economics 148/History 141B, Economics 150, Economics 164, Economics 190S or Economics 197S, or other courses with the approval of the Director of Undergraduate Studies.

For the B.S. Degree

The Bachelor of Science degree in economics signifies achievement of proficiency in quantitative skills and experience in applying these to economics. Students who contemplate graduate study in economics are urged to develop skills in intermediate calculus (Mathematics 103), linear algebra (Mathematics 104), differential equations (Mathematics 131), and advanced calculus (Mathematics 139). Students interested in graduate work in business administration may wish to focus less on mathematics and more on computer science, statistics, and quantitative economics.

Prerequisites: Economics 1A and 2A; or 1D or 51D. Economics 55D. Mathematics 32 and 102; or 103 or any higher-level mathematics course with Mathematics 103 as a prerequisite. Statistics 103, Statistics 104/Mathematics 135, Statistics 112, Statistics 113 or Statistics 114/Mathematics 136. Statistics is a prerequisite for Economics 139D and many 100-level economics courses and therefore should be taken by the fall of sophomore year. Prerequisites for the major, as well as requirements, may not be taken pass/fail.

Requirements: Three core courses: Economics 105D, Economics 110D and Economics 139D. Economics 139D should be completed no later than the spring of sophomore year since most 100-level economics courses have Economics 139D as a prerequisite. Five electives chosen from any additional non-core economics courses at the
100 level or above, with the exception of Economics 151, Economics 182, and Economics 888.

Substitution of similar courses in other departments at Duke for courses in the Department of Economics used toward major requirements is not permitted. A maximum of two transfer and/or study abroad credits may be counted toward major requirements. (The only exception applies to study abroad credit from the full year program at the London School of Economics, from which a maximum of four transfer and/or study abroad credits may be counted toward major requirements.)

The Department of Economics maintains online resources to guide economics majors and minors: http://www.econ.duke.edu/ecoteach/undergrad/

DEPARTMENTAL GRADUATION WITH DISTINCTION

Awarding of Distinction

A student will be awarded Distinction upon graduation if he/she has satisfied all of the following requirements:

1. A minimum grade point average of 3.3 in the major and 3.3 overall;
2. Completion of five electives commensurate with an undergraduate A.B. or B.S. degree;
3. Completion of an honors paper with a minimum grade of B+ determined by the primary instructor and an outside reader if taking path 1 (see below). If taking paths 2 or 3, the Honors committee will determine if the honors thesis qualifies for graduation with distinction.

Awarding of High Distinction

A student will be awarded High Distinction upon graduation if he/she has satisfied all of the requirements for Distinction and his/her honors thesis is selected by our Honors committee from among nominated theses.

Awarding of Research Distinction

In recognition of the strong independent research dimension required of a successful honors thesis, a student will be awarded Research Distinction upon graduation if the Honors committee determines his/her thesis qualifies for graduation with distinction regardless of whether or not the student meets the University and departmental GPA standards for graduation with distinction. These students will be recognized in the departmental graduation program.

Paths to the Honors Thesis

An honors thesis is a research paper completed during the senior year of the economics major. It represents a degree of research and critical thinking sufficiently complex and sophisticated as to require two to three semesters' worth of work. The thesis is planned, researched, drafted, and revised over the course of two to three semesters, using research tools and techniques commensurate with an undergraduate B.S. degree.

To be considered for Graduation with Distinction in economics, students must pursue one of three paths outlined below.

1. Students may take, in the spring of their junior year, an Honors Junior Research Workshop (Economics 201S) in one of four areas of study (Finance, History, Macroeconomics, and Microeconomics). They may then take, in the fall of their senior year, an Honors Senior Research Workshop (Economics 202S) in their area of study, through which they may complete their honors thesis. Students do not necessarily have to qualify for Graduation with Distinction in order to enroll in the Honors Research Workshops, nor will completion of these workshops guarantee Graduation with Distinction. Still, the workshops are selective and are a possible path to Graduation with Distinction or High Distinction if the honors thesis is awarded a minimum grade of B+. This grade
will be determined by the instructor and confirmed by an outside reader. Note: Should a problem arise that prevents a student from completing this sequence, they can switch to path 2 or 3. In such a case, the requirements for the new chosen path would need to be satisfied in order to receive honors.

Path 1 is a new path designed to create more opportunities for students to experience research in Economics. It is because of this research initiative that the major has been restructured so as to provide the proper educational background and training for students to be able to undertake novel research. Hence, the department now requires that all economics majors take econometrics before taking field courses in sub-disciplines. This enables students to read and understand advanced empirical papers in their area of interest. Further, if students then choose to undertake a research project, they will have the tools with which to complete proper empirical analysis.

The department determined that the best setting in which to foster the research process is a two-semester workshop, resembling graduate workshops. This concept is based on the idea that in a workshop setting, students meet with their professor(s) and each other to observe advanced research (professors from outside the university, Duke economics graduate students, and Duke economics professors present their own research to the students), and then, in turn, develop and later present their own research on a regular biweekly basis, continually receiving feedback from their peers and from professors and graduate students. These research workshops begin in a student's junior year for two reasons: firstly, to initiate students into a culture of research earlier in their college careers so as to have a greater impact; and secondly, to allow students to continue their research over the summer of their junior year since they will already have completed a prospectus as part of the Honors Junior Research Workshop. Davies Fellowships are available to sponsor some of these juniors (and their mentors) to enable them to do research full time under the supervision of their advisor.

2. Students who do not enter one of the Honors Junior Research Workshops or have not developed a topic of interest with an individual faculty mentor may enroll in Honors Seminar I (Economics 198S) in the fall semester of their senior year and Honors Seminar II (Economics 199S) in the spring semester of their senior year.

3. Students may also pursue Graduation with Distinction by enlisting the approval of a specific faculty member (through submission of an approval form to the Director of Undergraduate Studies) indicating that the faculty member is willing to work with the student in his/her senior year in an independent study format to produce an honors thesis. Students choosing this path enroll in a Research Independent Study (Economics 193) in the fall of their senior year, under the instruction of the mentoring faculty member. In the spring of their senior year, students may enroll in either Honors Research Independent Study (Economics 204) or Honors Seminar II (Economics 199S) with the signature of their faculty mentor and the approval of the 199S instructor (which is gained by submission of a satisfactory thesis proposal).
Proposed Flow of Courses for Economics Major Seeking to Graduate with Distinction

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td><strong>First-year</strong></td>
<td>Economics 51D, or 1A and 2A</td>
<td>Economics 55D</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td>Economics 105D Statistics 103</td>
<td>Economics 110D Economics 139D</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td>Two Field Course Electives</td>
<td><strong>PATH 1:</strong> Economics 201S. Honors Junior Research Workshop</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td><strong>PATH 1:</strong> Economics 202S. Honors Senior Research Workshop</td>
<td><strong>PATH 2:</strong> Economics 199S. Honors Seminar II</td>
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<tr>
<td></td>
<td><strong>PATH 2:</strong> Economics 198S. Honors</td>
<td><strong>PATH 3:</strong> Economics 193. Research Independent Study</td>
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<tr>
<td></td>
<td>Seminar I</td>
<td><strong>PATH 3:</strong> Economics 204. Honors Research Independent Study (or Economics 199S. Honors Seminar II)</td>
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</table>

**THE MINOR**

Requirements: Economics 1A and 2A; or 1D or 51D. Economics 55D. Three additional 100 level or above economics courses (excluding Economics 182 and 888). Substitution of similar courses in other departments at Duke for courses in the Department of Economics used toward major requirements is not permitted.

**Writing Assistance**

The EcoTeach Center’s Writing Consultant is available free of charge to all economics majors on an individual basis for assistance with all phases of writing, from research to final editing. Information on services and a link for appointments can be found at: [http://www.econ.duke.edu/ecoteach/undergrad/writing.php](http://www.econ.duke.edu/ecoteach/undergrad/writing.php).

**Education (EDUC)**

Associate Professor of the Practice Riggsbee, Director of the Program; Associate Professor of the Practice Malone, Director of Undergraduate Studies; Professor Cooper; Associate Professor Di Bona; Assistant Professor Linnenbrink-Garcia; Professor of the Practice O’Barr; Associate Professors of the Practice Malone and Riggsbee; Assistant Professors of the Practice Jentleson, Stephens, and Wynn; Adjunct Professor Eubanks; Adjunct Associate Professors Airall, Bryant and Wilson; Adjunct Assistant Professor Crumley; Adjunct Professor of the Practice Trask; Adjunct Associate Professor of the Practice Lattimore; Adjunct Assistant Professors of the Practice Hammer, and Teasley; Adjunct Lecturers Chafe and Wasiolek; Instructors Carboni and Hill; Research Associate Stocking; Research Scholar Ewald. Affiliated Faculty: Associate Professor of the Practice Bookman; Lecturing Fellow Ahern-Dodson; Adjunct Instructor Eidson

A minor, but not a major, is available in this department.

**49S. First-Year Seminar.** Topics vary each semester. Instructor: Staff. One course.

**50. Duke-Administered Study Abroad: Special Topics in Education.** CCI Topics differ by section. Instructor: Staff. One course.
82FCS. Civic Engagement, Service, and Social Ideals. CCI, EI, SS Civic engagement and service learning as pedagogical approaches in both K-12 and college settings. The ways civic engagement experiences may impact students' perspectives of race, class, gender. Education as a transformative experience. Includes a service learning experience focused on literacy issues in K-12 schools in which students write reflections on ethical issues. Open only to students in the Focus Program. Instructor: Malone. One course.

96S. Special Topics. Topics vary each semester. Instructor: Staff. One course.

100. Social and Philosophical Foundations of Education. CCI, EI, SS Interdisciplinary examination of issues confronting American education, incorporating historical, political, economical, philosophical, and social perspectives. Exploration of ways cultural influences and differences have shaped public schools. Students participate in structured service learning experience in which they reflect on ethical issues related to schooling. Required participation in service learning. Instructor: Jentleson, or Wynn. One course.

101. Duke-Administered Study Abroad: Advanced Special Topics in Education. CCI Topics differ by section. Instructor: Staff. One course.


108S. Teaching Practices in Elementary Language Arts and Social Studies. CCI, EI, SS Research-based teaching practices in elementary language arts and social studies for culturally diverse populations. Emphasis on literacy development across grade levels and content areas. Readings and field experience promoting critical analysis of ethical teaching practices, role of teachers and schools in society, and impact of teacher affect on environment and student learning. Consent of instructor required. Instructor: Riggsbee. One course.

109S. Elementary Curriculum. Analysis, development, and evaluation of elementary curriculum with emphasis on integrating the expressive arts with literacy, mathematics, social studies, and science. Using Gardner's multiple intelligences model of learning, students write comprehensive curriculum units that focus on meeting the needs of learners from diverse social, ethnic, and cultural groups. Consent of instructor required. Instructor: Riggsbee. One course.

110S. Research/Reflective Practice Elementary Education. R, SS, W Classroom-based action research and structured reflection to promote the development of inquiry-oriented teachers. Systematic, long-term research project focused on meeting the diverse needs of learners in the elementary classroom. Consent of instructor required. Instructor: Staff. One course.

112S. Children, Schools and Society. CCI, EI, SS, W The processes by which children are educated in the United States. Ways children acquire through schooling social skills, moral values, and a sense of their role in society. Evaluation of the appropriateness of these goals for schooling, how schooling shapes children's development, and how the education policies that sanction these processes are formed. Application of theory and research for solving complex societal problems that confront children, schools, and communities. Required participation in service learning. Instructor: Wynn. One course. C-L: Public Policy Studies

109S, Early Childhood Education, Ethics, Children in Contemporary Society

113S. Educational Technology. R, SS, STS Exploration of the history and theories of education in general and of educational technology in specific; relationship between theories of learning and instructional activities in technology; aesthetics of instructional and screen design; human-computer dialogue, "meaningful input," response analysis, speech
recognition, text presentation; regular online investigations; final exercises: individual hard-copy research "portfolios" of the semester's work and team-built online course web site, with emphasis on developing aesthetic understanding. Instructor: Staff. One course. C-L: Information Science and Information Studies

118. Educational Psychology (C, D). CCI, EI, SS Principles of developmental, social, and cognitive psychology as applied to education, with a focus on how children learn. Examination of the impact on learning of race, class, gender, and ethnicity, including a comparative analysis of cultural differences in American schools. Through structured service learning experiences in local schools, students reflect through writing on ethical issues in teaching. Required service learning. Instructor: Garcia, Linnenbrink, or Malone. One course. C-L: Psychology 108A, Children in Contemporary Society

120. Elementary Education: Internship. EI Engagement, as part of a teaching internship in elementary schools, in active classroom research projects by designing, implementing, and evaluating units of instruction. Creation of a portfolio of products to demonstrate technology competencies for teaching certification. Students also reflect and write on ethical issues involved in their service experiences in public schools. Consent of instructor required. Instructor: Riggsbee. Two courses.

121S. Infancy, Early Childhood, and Educational Programs. CCI, EI, SS A comprehensive introduction to the field of early childhood education and child development from infancy to age eight. Examines programs, strategies, trends, and methods that reflect current educational practice and research. Involves structured service learning experiences in which students engage in comparative analysis of children of various cultures. Students also examine ethical issues encountered in early childhood programs. Instructor: Staff. One course. C-L: Early Childhood Education, Children in Contemporary Society

123. Motivation and At-Risk Students. CCI, SS Explores current motivational theories and how these theories can be applied to motivating at-risk students. Includes multicultural issues in teaching at-risk students. Instructor: Staff. One course.

125S. Unrecognized Talent: Minority Children and Gifted Education. CCI, EI, SS Investigation of society, counselors, teachers, parents, and self in the social, emotional, and academic development of the minority gifted child. Focus on cultural comparisons relating to the manifestation of giftedness, ways of reversing under-representation of minority students in programs for the gifted, and ethical issues relating to the use of tests in identifying giftedness as it relates to minority students. Instructor: Stephens. One course. C-L: Children in Contemporary Society

133S. Legal Issues in Education. R, SS, W A case analysis approach giving students an opportunity to identify and review past, current, and emerging legal issues and theories in education. Topics include students' rights (for example search and seizures, due process), institutional liability and teacher's rights at the elementary and secondary levels and in the college setting. Instructor: Wasiolek. One course.

137. Contemporary Issues In Education. CCI, EI, SS Investigation of current issues and problems in the field of education including areas of race, gender, equity, and educational policy. Examines issues from an interdisciplinary perspective. Includes fieldwork in local public schools. Required participation in service learning. Instructor: DiBona. One course. C-L: Children in Contemporary Society

139. Marxism and Society. SS One course. C-L: see Literature 181A; also C-L: Cultural Anthropology 139, History 186, Sociology 139, International Comparative Studies

140. The Psychology of Work. CCI, SS, STS An interdisciplinary examination of career choice and development with particular focus on ways work may change in the future, including the impact on work of major developments in science and technology. Comparative analysis of work across cultures and within American society. Instructor: Staff. One course.
144S. Children's Self Expression: Literacy Through Photography. EI, SS One course. C-L: see Documentary Studies 144S; also C-L: Visual Studies 103FS

146S. Gender At Duke. CCI, EI, R, SS Gender systems at Duke, with emphasis on gender differences in the University's culture and ideals. Historical examination of the ethical arguments about institutional policies. Student research based on documents in University archives. Instructor: O'Barr. One course.

147. Urban Education. CCI, SS One course. C-L: see African and African American Studies 147; also C-L: Sociology 136, Children in Contemporary Society

148S. Learning to Read (C, D). R, SS One course. C-L: see Psychology 145S; also C-L: Children in Contemporary Society

149S. Women and the Professions. EI, R, SS, W Interdisciplinary analysis of the history of ideas about women and the professions with emphasis on women's actions, past, present and future. The changing status of women in professional life; ethical and political implications of public and personal decision-making. Study of research and writing by and about women in professional fields; interviews with working women. Research paper integrating students' major; the internship experience and their future goals required. Senior seminar open only to Baldwin Scholars. Consent of instructor required. Instructor: Staff. One course. C-L: Sociology 130S

150S. Gender, Politics, and Higher Education. CCI, CZ, R, SS The evolution of North American colleges and universities as gendered institutions, the demands of women for higher education access, and the organization of disciplines in the contemporary university. The roles of multiple actors (faculty, students, administrators, publics) as well as the dynamics in different sectors (academic, student affairs, athletics, fund raising). Instructor: O'Barr. One course.

151S. Literacy and Service Learning. CCI, EI, SS Recent research on the role of service learning in promoting literacy development in children; the impact of service learning, volunteering, and school-based tutoring programs on students in K-12 schools; literacy issues such as phonics versus whole language; cognitive approaches to developing reading comprehension; methods of teaching beginning reading; reading learning disabilities; and the impact of cultural diversity on literacy. Includes a service-learning component in the local schools. Required participation in service learning. Instructor: Malone. One course.

152S. Civic Engagement and the Duke-Durham Partnership. CCI, EI, R, SS The impact university-community partnerships have on the community and participating university students. Effective models of collaboration between universities and their surrounding communities. Whether university efforts to develop partnerships with local communities result in meaningful social change. Includes a service-learning component in which students turn in weekly reflections on the ethical issues and social justice concerns they encounter. Consent of instructor required. Instructor: Ahern-Dodson. One course.

153S. Research in Service Learning. CCI, EI, R, SS Community-based research including design, implementation, evaluation of research in community settings. Examination of existing models of collaboration on research projects between universities and communities. Includes student participation in community-based service learning and research, writing about the ethical issues that emerge. Instructor: Stocking. One course.

160S. Early Childhood Internship. EI Structured supervised internship in an early childhood program integrated with a reflective seminar in which students examine ethical issues in early childhood education. Includes comparative analysis of childhood experiences in different cultures. For Early Childhood Education Studies Certificate Students only. Instructor: Chafe or staff. One course. C-L: Early Childhood Education

162T. Freshman-Sophomore Tutorials. Small group discussions of significant books, authors, and ideas in education. May be repeated. Consent of instructor and Director of Undergraduate Studies required. Instructor: Staff. Half course.
170S. Selected Topics. Selected topics seminar. Instructor: Staff. One course.

171T. Junior-Senior Tutorials. Small group discussions of significant books, authors, and ideas in education. The availability of tutorials, their content, and the instructors will be announced before preregistration. Consent of instructor required. Instructors: Staff. Half course.

172T. Junior-Senior Tutorials. Small group discussions of significant authors and ideas in education. Different courses indicated by letter. May be repeated. Consent of instructor required. Instructors: Staff. Half course.

190S. Secondary School Issues: Pedagogy, Culture, and Methods. CCI, EI, SS, STS Examination of schools and classrooms of the twenty-first century with focus on values, beliefs, and assumptions underlying teaching and learning in high school. Emphasis on ethical issues in teaching, pedagogical and methodological practices, teacher leadership, and impact of technology on schooling. Exploration of social fabric of schools as related to diversity, educational philosophies, and school culture by viewing these constructs from divergent perspectives. Students complete an extensive research project based on fieldwork in a local high school. Instructor: Wynn. One course.

191. Research Independent Study. Research independent study in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive research paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Independent Study. Directed readings in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or project on a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

196S. Teaching High School English. CCI, SS Secondary School curriculum and instruction with focus on teaching of English, special emphasis placed on meeting the needs of high school students from diverse cultural backgrounds. Includes field-based experience with a focus on examining ethical teaching practices. Instructor: Staff. One course.

197S. Teaching High School Mathematics. R, SS Secondary School curriculum and instruction with focus on teaching of Mathematics, special emphasis placed on meeting the needs of high school students from diverse cultural backgrounds. Includes field-based experience with a focus on examining ethical teaching practices. Instructor: Bookman. One course.

198S. Teaching High School Science. CCI, SS Secondary School curriculum and instruction with focus on teaching of Science, special emphasis placed on meeting the needs of high school students from diverse cultural backgrounds. Includes field-based experience with a focus on examining ethical teaching practices. Instructor: Eubanks. One course.

199S. Teaching High School Social Studies. CCI, SS Secondary School curriculum and instruction with focus on teaching of Social studies, special emphasis placed on meeting the needs of high school students from diverse cultural backgrounds. Includes field-based experience with a focus on examining ethical teaching practices. Instructor: Staff. One course.

For Seniors and Graduates

205S. Selected Topics. Selected topics seminar. Instructor: Staff. One course.

209. Global Education. CCI, EI, SS, STS Major educational changes and reforms in selected countries designed to illustrate general similarities and differences in the policies of developing and industrialized societies. Emphasis on American educational issues in the context of the emerging global economy with a focus on how policies affect various cultural groups due to economic, social, cultural, or gender diversity. Exploration of the ethical dimensions that decision makers must face in formulating policy. Investigation of the ways
technological innovation is changing schools and the teaching/learning process. Instructor: Di Bona. One course.

**214. Technology, Society, and Schools. SS** Role of technology in schools and society. Introduction for preservice teacher candidates to technology tools including Photoshop, web design, and digital storytelling. Emphasis on integrating technology into instruction and utilizing technology to become educational leaders. Includes elements of design through completion of online portfolio. Designed to meet the North Carolina Department of Public Instruction technology requirements for teaching licensure. Consent of instructor required. Instructor: Wynn or Crumley. Half course.


**216. Secondary Education: Internship. R** Supervised internship in a teaching center in a senior high school involving some full-time teaching. Students also complete an action research project focused on an important issue in classroom teaching. For student teachers only. Consent of instructor required. Instructor: Staff. Two courses.

**270S. Selected Topics Seminar. SS** May be repeated. Consent of instructor required. Instructor: Staff. One course.

**THE MINOR**

The Minor in Education is designed to provide students who are majoring in Arts and Sciences disciplines with opportunities to combine coursework in their majors with academic and field-based experiences focused on the complex social, psychological, economic, historical, political, and cultural issues that impact schools and school children.

**Requirements.** A total of five courses including three required courses (Education 100; Education 118; and a third required Education course chosen from a group of courses that address pedagogical theory and practice and the impact of individual differences and social diversity on teaching and learning; this third required course must be approved by the Director of Undergraduate Studies in Education, carry the CCI code, and involve a field-based experience in public schools). The fourth and fifth courses are electives that must be Education courses at the 100 level or above. Only one of the five courses may be taken at an institution other than Duke.

**UNIVERSITY PROGRAM FOR PREPARATION FOR TEACHING**

The Duke University Teacher Preparation Programs offer secondary teacher licensure programs at both the undergraduate and Master’s levels and an elementary licensure program at the undergraduate level. A common conceptual framework—preparing knowledgeable and skilled instructors who conduct themselves professionally and ethically as they practice reflective teaching—links the Teacher Preparation Programs. As students complete general education requirements of Trinity College and of a selected major, they may also fulfill requirements of an approved Duke teacher preparation program and become licensed to teach. Licensure by the Duke-approved program is authorized through the State Board of Education in North Carolina and is reciprocal with most states. A license to teach along with an undergraduate degree is required by most public school systems and is recommended by many independent schools.

Brief descriptions of two undergraduate programs based on Bachelor of Arts or Bachelor of Science degrees (secondary school teaching and elementary teaching) are followed by a description of a program for secondary teaching based on a Master of Arts in Teaching degree. The goals of and criteria for admission to any of these programs are available from the respective offices.

Duke University is accredited by the North Carolina Department of Public Instruction (DPI) and the National Council For Accreditation of Teacher Education (NCATE) and has
reciprocal approval for initial licensure with most of the fifty states. Title II data is available
upon request.

Secondary School Teaching (A. B. or B. S. degree)

The Program in Education offers secondary school teacher licensure programs in
English (open to English majors only), mathematics (open to mathematics majors only),
social studies (open to majors in cultural anthropology, economics, history, political
science, psychology, public policy, religion, or sociology) and science (open to majors in
biological anthropology and anatomy, biology, chemistry, environmental studies, geology,
or physics). Prospective teachers are advised to consult with the academic advisors in their
majors and the secondary program director concerning their interest in teaching and in
being accepted into this preparation program.

Interested undergraduate students may apply to the secondary school teaching program
in the spring of their sophomore year or the fall of their junior year. Students are accepted
by competitive criteria into a program which includes education courses with field
experiences in local schools, and an intensive senior spring semester teaching internship.
During the internship students teach high school classes in their respective disciplines under
the supervision of an experienced teacher and a university professor.

Upon completion of the senior year spring semester internship, and the four-year Trinity
College undergraduate degree, students may apply for licensure.

Elementary School Teaching (A. B. or B. S. degree)

Undergraduate students who plan to teach young children (kindergarten through grade
six) may become eligible for licensure to teach while at Duke in addition to completing any
academic major offered by Trinity College. The Elementary Teacher Preparation Program
includes education courses with field experiences in diverse classroom settings and an
intensive senior spring semester internship.

Interested undergraduate students may apply to the elementary program beginning in
the sophomore year. Students are selected by competitive criteria for participation in the
program. An intensive senior spring semester links together a teaching internship in a local
public school, seminars, and independent directed research (four course credits). Students
selected for the elementary teaching program are placed as interns with mentor teachers in
an elementary school and are also supervised by a Duke professor.

Upon completion of the senior year spring semester internship and the four-year Trinity
College undergraduate degree, students may apply for licensure.

Master of Arts in Teaching (MAT) in Secondary Schools

The Master of Arts in Teaching Program is designed for students who wish to teach
their discipline in secondary schools by completing a graduate degree. The normal
sequence for MAT coursework may begin in the spring semester of the senior year. Courses
may not be double-counted toward both the bachelor's and MAT degrees. Additional
information is available from the MAT office. This program is approved for teacher
licensure by the State Board of Education in North Carolina and is reciprocal with most
states.

Electrical and Computer Engineering

For courses in Electrical and Computer Engineering, see “Electrical and Computer
Engineering (ECE)” on page 602

Energy and the Environment

Professor Laursen and Professor Klein, Co-Directors

A certificate, but not a major, is available in this program.

The undergraduate certificate in Energy and the Environment is designed to provide
Duke undergraduates with an understanding of the breadth of issues that confront our
society in its need for clean, affordable, and reliable energy. An expertise in energy will
expand the students’ career options in the private, non-profit, government, and academic sectors. In addition to integrative core and capstone courses, the certificate will expose students to the three key disciplines in the study of energy and the environment: markets and policy; environmental impacts and resources; and energy technology. The goal of the certificate is to develop innovative thinkers and leaders who understand the energy system as a whole and the important interconnections among policy, markets, technology, and the environment.

Beyond traditional coursework, the certificate in Energy and the Environment will offer a variety of activities intended to provide students with a real-world perspective and hands-on experiences. These include field trips, guest speakers such as visiting executives and practitioners, research opportunities, and internships. Additional information may be obtained from the Undergraduate Programs Office for the Nicholas School.

**PROGRAM REQUIREMENTS**

The certificate requires a total of six courses, no more than three of which may originate in a single department. No more than two courses counted toward the certificate in Energy and the Environment may also satisfy the requirements of any major, minor, or other certificate program.

Energy use is a multi-faceted problem, which draws upon the perspectives and expertise of a variety of disciplines. The certificate in Energy and the Environment is therefore similarly interdisciplinary. The certificate requires three integrative courses: two introductory courses (Environment 130 and Civil and Environmental Engineering 24L) and a Capstone Project Course (Environment 190L and Engineering 190L) in which teams of students explore the feasibility of a new or modified energy resources or technology. Three elective courses are also required, with one from each area (Markets & Policy, Environment, and Energy Technology) taken from a list that can be found on the Web site: [http://www.nicholas.duke.edu/programs/undergrad/energycert.html](http://www.nicholas.duke.edu/programs/undergrad/energycert.html)

**Engineering**

For courses in Engineering, see page “Engineering (Interdepartmental) (EGR)” on page 581

**English (ENGLISH)**

Professor Baucom, Chair; Associate Professor Sussman, Director of Undergraduate Studies; Professors Aers, Applewhite, Aravamudan, Baucom, Beckwith, Clum, Davidson, Ferraro, Gaines, Holloway, Moi, Pfau, Pope, Porter, Price, Quilligan, Saldivar, Smith, Strandberg, Torgovnick, and Wald; Associate Professors Harris, Jones, Khanna, Mitchell, Moten, Moses, Psomiades, Quilligan, Shannon, Somerset, Sussman, Tetel, Wallace, and Willis; Assistant Professors Cohen and Metzger; Associate Professor of the Practice Malouf; Assistant Professor of the Practice Hillard; Lecturer Askounis; Adjunct Professors Eble, Ruderman, and Wolfram; Adjunct Associate Professors Thomas and Wittig; Adjunct Assistant Professors Bolonyai, Kennedy, and Weldon; Senior Lecturing Fellows Donahue and Gopen

A major or minor is available in this department.

20. **Literature and Composition.** Credit for Advanced Placement on the basis of the College Board examination in literature and composition. One course.

26S. **Studies in Literary Topics.** ALP, W May be taken twice. Instructor: Staff. One course.

29. **Composition and Language.** Credit for Advanced Placement on the basis of the College Board examination in composition and language. One course.

49BS. **First-Year Seminar on Literature.** ALP Topics vary each semester offered. Prior to the drop/add period, this course is restricted to first-year students who have not fulfilled their seminar requirement. Instructor: Staff. One course.

52. **Representative American Writers.** ALP, W Continuation of English 51. Selections and complete works. James, Frost or Robinson, Crane or Dreiser, O'Neill, Faulkner, Hemingway, and others. Instructor: Staff. One course.

53. **Duke-Administered Study Abroad: Special Topics in English.** CCI Topics differ by section. Instructor: Staff. One course.

63S. **Introduction to Creative Writing.** ALP, W Instructor: Staff. One course.

64S. **Topics in Documentary Writing.** ALP Topics in documentary writing. Selected topics. Instructor: Staff. One course.

80FCS. **Focus Program Seminar on Writing or Language.** ALP Topics vary each semester offered. Instructor: Staff. One course.

81FCS. **Focus Program Seminar on Literature.** ALP Topics vary each semester offered. Instructor: Staff. One course.

89FCS. **Literature of the Sea.** ALP, W Travel narratives, poetry, novels, drama, epics, and film that take place at sea, or on island shores, as well as secondary literature that theorizes on physical, political, and philosophical possibilities in supra- and transnational spaces. Emphasis on the social, cultural, and political structures that function at sea, focusing on exile, imperial travel, the Middle Passage, cosmopolitan journeys, shipwreck, and tourism. Material can include eco-criticism/fiction on Marine Lab travel sites, Singapore, Hawaii, Trinidad, Carolina islands. Given at Beaufort. Instructor: Staff. One course.

90AS. **Readings in Genre.** ALP, W An introduction to the skills of critical reading and the vocabulary of critical analysis by close examination of poetry, fiction, and drama (or other media such as film) from a range of historical periods. Instructor: Staff. One course.

90B. **Reading Historically.** ALP, W A study of representative writings selected from a range of historical moments from the High Middle Ages to the present, contextualized with the intellect, cultural, and historical background of their times. Instructor: Staff. One course.

90BS. **Reading Historically.** ALP, W Seminar version of 90B. A study of representative writings selected from a range of historical moments from the High Middle Ages to the present, contextualized with the intellectual, cultural, and historical background of their times. Instructor: Staff. One course.

94. **Introduction to Theater.** ALP, CCI One course. C-L: see Theater Studies 91

100AS. **Writing: Fiction.** ALP, W Instruction in the writing and study of fiction. Recommended for students before they take English 103S, 104S, 201S, 202S, or 203S. Consent of instructor required. Instructor: Staff. One course.

100CS. **Writing: Poetry.** ALP, W Instruction in the writing and study of poetry. Recommended for students before they take English 105S or 106S. Consent of instructor required. Instructor: Staff. One course.

101A. **Introduction to Film (DS4).** ALP One course. C-L: see Literature 110; also C-L: Theater Studies 171, Film/Video/Digital 101, Visual Studies 121A, Policy Journalism and Media Studies

101B. **Introduction to Cultural Studies (DS4).** ALP One course. C-L: see Literature 100; also C-L: Visual Studies 121E, Film/Video/Digital

101CS. **Documentary Film/Video Theory and Practice (DS4).** ALP One course. C-L: Cultural Anthropology 131S, Film/Video/Digital 138S, Visual Studies 117KS, Documentary Studies

101ES. **Documentary Writing: Creative Nonfiction Through Fieldwork.** ALP, R, W One course. C-L: see Documentary Studies 111S
102S. Screenwriting. ALP, W One course. C-L: see Theater Studies 137S; also C-L: Film/Video/Digital 131S

103S. Writing: Short Stories. ALP, W Intensive writing of the short story, with students completing a minimal of thirty pages of finished and presumably publishable fiction. Discussion of students' manuscripts and individual conferences with the instructor, taking into consideration questions of the aesthetics, ethics, and morality of fiction, as well as procedures for its publication. Open to sophomores, juniors, and seniors; recommended for, but not limited to, students who have taken English 100A. Consent of instructor required. Instructor: Applewhite, Malouf, Pope, Porter, or Price. One course.

104S. Writing: Short Stories. ALP, W See English 103S. Open to sophomores, juniors, and seniors; recommended for, but not limited to, students who have taken English 100A. Consent of instructor required. Instructor: Applewhite, Malouf, Pope, Porter, or Price. One course.

105S. The Writing of Poetry. ALP, W Meter, image, tone, and dramatic organization in traditional and modern poems as a basis for original composition. Open to sophomores, juniors, and seniors; recommended for, but not limited to, students who have taken English 100C. Consent of instructor required. Instructor: Applewhite or Pope. One course.

106S. The Writing of Poetry. ALP, W See English 105S. Open to sophomores, juniors, and seniors; recommended for, but not limited to, students who have taken English 100C. Consent of instructor required. Instructor: Applewhite or Pope. One course.

107S. Dramatic Writing. ALP, W One course. C-L: see Theater Studies 135S; also C-L: Film and Video

108AS. Advanced Dramatic Writing. ALP, W One course. C-L: see Theater Studies 136S; also C-L: Film and Video

108BS. Transforming Fiction for Stage and Screen. ALP, W One course. C-L: see Theater Studies 138S; also C-L: Film/Video/Digital 116S

109S. Special Topics in Writing. ALP, W Consent of instructor required. Instructor: Staff. One course.

110A. Introduction to Old English (DS1). CCI, CZ, R Introduction to the literature and culture of England before 1100. Primary focus on learning to read the written language of this period, beginning with short, simple prose texts and poems and arriving at some of the most sophisticated and fascinating literary writing in the English language. Instructor: Somerset. One course. C-L: Medieval and Renaissance Studies 106A

111. Introduction to Linguistics (DS4). CCI, SS One course. C-L: see Linguistics 101; also C-L: Cultural Anthropology 107, International Comparative Studies

112. English Historical Linguistics (DS1, DS2, DS3, or DS4, as determined by instructor). SS Introduction to methods and principles of historical linguistics, as exemplified by the history of the English language from Proto-Indo-European to the present. Not open to students who have taken English 208. Instructor: Butters or Tetel. One course. C-L: Linguistics 112

113S. Introduction to Theoretical Linguistics. R, SS One course. C-L: see Linguistics 104S; also C-L: Cultural Anthropology 102S

114. Languages of the World. CCI, SS One course. C-L: see Linguistics 102; also C-L: Cultural Anthropology 114, Russian 117, International Comparative Studies 102E


116AS. Scientific Writing. ALP, W Prerequisite: Writing 20. Instructor: Staff. One course.


117ES. Advanced Composition: Writing Humor. ALP, W Includes analysis of works of humorous writers from several centuries; study of various comic forms and techniques. Creation of original essays. Prerequisite: Writing 20. Instructor: Askounis. One course.

117FS. Advanced Composition: Spiritual Autobiography. ALP, CZ, EI, W An exploration of narratives from diverse traditions and periods. Writers may include Augustine, Gandhi, Simone Weil, Thomas Merton, Malcolm X and others. Students maintain a daily journal, write weekly responses to readings, and embark on their own narratives. Prerequisite: Writing 20. Instructor: Askounis. One course.


119S. Special Topics in Linguistics. CCI, R, SS Instructor: Staff. One course.

120. Advertising and Society: Global Perspective (DS4). CCI, SS One course. C-L: see Cultural Anthropology 110; also C-L: Sociology 160, Linguistics 120, Visual Studies 110E, Canadian Studies, International Comparative Studies, Film and Video, Markets and Management Studies, Policy Journalism and Media Studies, Women's Studies

120D. Advertising and Society: Global Perspective (DS4). CCI, SS One course. C-L: see Cultural Anthropology 110D; also C-L: Sociology 160D, Linguistics 120D, Markets and Management Studies

121A. Medieval English Literature to 1500 (DS1). ALP, CCI, R The principal forms and examples of English prose, poetry, and drama of the Anglo-Saxon and Middle English periods (excluding Chaucer). In translation. Instructor: Aers, Beckwith, Gopen, or Somerset. One course. C-L: Medieval and Renaissance Studies 121A

121B. Sixteenth-Century English Literature (DS2). ALP Emphasis in poetry on Wyatt, Sidney, Spenser, Raleigh, and Shakespeare; in prose on Sidney and Sir Thomas More; in drama on Marlowe. Instructor: DeNeef, Quilligan, or Shannon. One course. C-L: Medieval and Renaissance Studies 121B

122. Movies of the World/The World of Movies. ALP, CCI, STS One course. C-L: see Literature 113; also C-L: German 156, Russian 113, Film/Video/Digital 112

123A. English Literature: 1600 to 1660 (DS2). ALP Emphasis in poetry on Jonson and the cavaliers, Donne and the metaphysicals; in drama on Jonson, Tourneur, Webster, and Ford; in prose on character writers, Bacon, Burton, Donne, and Browne. Instructor: DeNeef or Quilligan. One course. C-L: Medieval and Renaissance Studies 123A

123B. English Literature: 1660 to 1800 (DS3). ALP Major genres and authors such as Dryden, Congreve, Addison, Swift, Pope, Gray, Johnson, Blake, and Defoe or Fielding. Instructor: Aravamudan or Sussman. One course.

123C. The Living Middle Ages. ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 114; also C-L: Art History 139, Classical Studies 139, History 116

123CS. Aspects of Medieval Culture (DS1). ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 114S; also C-L: Art History 139S, Classical Studies 139S, History 116S

123E. Aspects of Renaissance Culture (DS2). ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 115; also C-L: Art History 149, History 148A, Italian 134

123F. Women Writers of the Renaissance: Spain and England. ALP, CCI, CZ One course. C-L: see Spanish 152; also C-L: Art History 152

124S. Sexualities in Film and Video (DS4). ALP One course. C-L: see Literature 115S; also C-L: Film/Video/Digital 115S, Visual Studies 121CS, Study of Sexualities

English (ENGLISH) 269
125. **English Literature of the Romantic Period (DS3). ALP**


126A. **English Literature: 1832 to 1900 (DS3). ALP**

Major writers and genres, with special emphasis on the Brontës, Dickens, Hardy, Tennyson, Carlyle, Browning, Arnold, and Ruskin. Instructor: Psomiades. One course.

126B. **Victorian Poetry (DS3). ALP**

Tennyson, Browning, Barrett Browning, Arnold, the Rossettis, Swinburne, Morris, and others. Instructor: Psomiades. One course.

127. **British Literature: 1900 to 1945 (DS4). ALP**

Principal writers of fiction, drama, and poetry such as Yeats, Conrad, Shaw, Joyce, Lawrence, Woolf, Eliot, Auden, and others. Instructor: Baucom, Moses, Pope, or Torgovnick. One course.

128. **Special Topics in British Literature since 1945 (DS4). ALP**

Instructor: Staff. One course.

129C. **Shakespeare: Comedies and Romances (DS2). ALP**

A generic approach to twelve short plays by Shakespeare in the genres of comedy and romance. Instructor: Quilligan. One course. C-L: Medieval and Renaissance Studies 129C

131. **Studies in a Single British Author (DS1, DS2, DS3, or DS4, as determined by instructor). ALP**

Instructor: Staff. One course.

131AS. **D. H. Lawrence (DS4). ALP, W**

Exploration of Lawrence's representative novels, stories, essays, poetry, and letters. With emphasis on the development of themes and techniques and his relationship to the social, political, and intellectual currents of his time. Instructor: Ruderman. One course.

131S. **Studies in a Single British Author (DS1, DS2, DS3, or DS4, as determined by instructor). ALP**

Seminar version of English 131. Instructor: Staff. One course.

132CS. **Topics in Renaissance British Literature (DS2). ALP**

(Taught in the Oxford Summer Program.) Instructor: Staff. Two courses. C-L: Medieval and Renaissance Studies 132AS

132ES. **Topics in Nineteenth-Century British Literature (DS3 or DS4). ALP**

(Taught in the Oxford Summer Program.) Instructor: Staff. Two courses.

133A. **British and Irish Drama: 1890-1950 (DS4). ALP**

One course. C-L: see Theater Studies 113

133B. **After the Fall of the Empire: British and Irish Drama 1945 to the Present (DS4). ALP**

One course. C-L: see Theater Studies 114


Nineteenth and early twentieth-century fiction, philosophy, and film as these formalize the psychological effects of history change. Instructor: Pfau. One course. C-L: German 174, Literature 151G

134AS. **Radio: The Theater of the Mind. ALP, CZ**

One course. C-L: see Theater Studies 107S; also C-L: Music 122S, Literature 132AS

134B. **Criminality of Art. ALP**

One course. C-L: see Theater Studies 176; also C-L: Literature 131C, Visual Studies 128F

136. **Eighteenth-Century British Novel (DS3). ALP, W**


137. **Nineteenth-Century British Novel (DS3). ALP**

Scott, Austen, Dickens, Thackeray, Trollope, the Brontë's, George Eliot, Meredith, Butler, Hardy, and others. Instructor: Moses, Psomiades, or Torgovnick. One course.

139AS. **Special Topics in British Literature I (DS1). ALP**

Can be counted as a pre-1500 course for the diversified requirement. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 139AS
139BS. Special Topics in British Literature II (DS2). ALP Can be counted as a 1500-1660 course for the diversified study requirement. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 139BS

139CS. Special Topics in British Literature III (DS3). ALP Can be counted as a 1660-1860 course for the diversified study requirement. Instructor: Staff. One course.

139ES. Special Topics in British Literature IV (DS4). ALP Can be counted as a 1860-Present course for the diversified study requirement. Instructor: Staff. One course.

140S. Chaucer (DS1). ALP, CCI, R The first two-thirds of his career, especially Troilus and Criseyde. Instructor: Aers, Beckwith, DeNeef, Gopen, or Somerset. One course. C-L: Medieval and Renaissance Studies 140BS


142. Duke-Administered Study Abroad: Advanced Special Topics in English. CCI Topics differ by section. Instructor: Staff. One course.

143. Shakespeare before 1600 (DS2). ALP, EI, R Twelve plays before 1600. Examination of these central Western cultural texts with respect to how they prove and have proved aesthetically, ethically, morally formative and transformative, and how they have served (and continue to serve) as keys to the relations between Western and other cultures. Instructor: DeNeef, Gopen, Jones, Porter, or Shannon. One course. C-L: Theater Studies 109, Medieval and Renaissance Studies 182

144. Shakespeare after 1600 (DS2). ALP, EI, R Usually ten plays after 1600. Not open to students who have taken Drama 116. Instructor: DeNeef, Gopen, Jones, Porter, or Shannon. One course. C-L: Medieval and Renaissance Studies 183


146. Romantic Fairy Tales: Literary and Folk Fairy Tales from Grimms to Disney (DS3) (DS4). ALP, CCI, CZ One course. C-L: see German 173; also C-L: Literature 151E, International Comparative Studies 183A

147. Modernist Classics (DS4). ALP, CCI One course. C-L: see Literature 155; also C-L: Theater Studies 124


149. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924 (DS3). ALP, CZ, EI One course. C-L: see German 185; also C-L: Literature 163F, Ethics


151. American Literature to 1820 (DS2). ALP, CCI Colonial authors such as Bradford, Taylor, Cotton Mather, Edwards, Byrd, and Franklin, and authors of the early Republic such as Tyler, Frenau, and C. B. Brown. Instructors: Cohen, C. Davidson, or Jones. One course.


153. American Literature: 1860 to 1915 (DS4). ALP, CCI, W A study, through a focus on a range of naturalist and realist authors, of the social and political issues of their day through archival and literary research and readings. Authors include Cather, Chesnutt,
Chopin, Crane, Dickinson, DuBois, Freeman, Gilman, James, Jewett, Twain, Washington, Wharton. Instructor: C. Davidson, Jones, Saldivar, Wald, or Wallace. One course.


157. The Devil's Pact: Faust and the Faust Tradition. ALP, CCI, EI One course. C-L: see German 170; also C-L: Literature 163G, Ethics


158BS. Asian American Literature (DS4). ALP, CCI, CZ Asian/ American Cultural production from the late nineteenth century read in the context of United States colonialism and Asia/ Pacific wars and resultant migrations. Film and hypertext, lyrics (from poetry to rap), drama, fiction and non-fiction. Not open to students who have taken this course as English 179ES. Instructor: Metzger. One course.

161. Studies in a Single American Author (DS1, DS2, DS3, or DS4, as determined by instructor). ALP Instructor: Staff. One course.

162B. American Drama and Film: 1945-1960 (DS4). ALP One course. C-L: see Theater Studies 102; also C-L: Visual Studies 128B

162C. American Drama and Film Since 1960 (DS4). ALP One course. C-L: see Theater Studies 103; also C-L: Visual Studies 128C


163BS. Studies in American Women Poets (DS4). ALP Covers a range of women poets with emphasis on modern and contemporary writers. Includes such areas as methods of interpretation, shaping of critical reputation, and impact of cultural movements on development of voice and literary approaches. Instructor: Pope. One course.

163CD. Types of Recent Fiction. ALP One course. C-L: see Literature 151HD

164A. African American Literature (DS3). ALP, CCI, R Oral and literary traditions from the American colonial period into the nineteenth century, including spiritual as lyric poetry and the slave narrative as autobiography. Not open to students who have taken the former English 167. Instructor: Holloway, or Wallace. One course. C-L: African and African American Studies 173

164B. African American Literature (DS4). ALP Continuation of English 164A. The late nineteenth century to contemporary writers. Not open to students who have taken the former English 168. Instructor: Holloway, Moten, or Wallace. One course. C-L: African and African American Studies 174


168S. Seminar in African-American Literary Studies (DS3 or DS4, as determined by instructor). ALP, CCI Topics may change each semester. Instructor: Holloway, Moten, Wallace, or Willis. One course.

169AS. Special Topics in American Literature II (DS2). ALP Can be counted as a 1500-1660 course for the diversified study requirement. Instructor: Staff. One course.

169BS. Special Topics in American Literature III (DS3). ALP Can be counted as a 1660-1860 course for the diversified study requirement. Instructor: Staff. One course.

169CS. Special Topics in American Literature IV (DS4). ALP Can be counted as 1860-Present course for the diversified study requirement. Instructor: Staff. One course.

169E. Special Topics in American Literature IV (DS4). ALP Lecture version of 169CS. Can be counted as 1860--Present course for the diversified study requirement. Instructor: Staff. One course.

170. Special Topics in Genre (DS1, DS2, DS3, or DS4, as determined by instructor). ALP Instructor: Staff. One course.

170S. Poetry and Medicine (DS4). ALP, EI, R The multiple historical and contemporary relationships between the expressive and the healing arts, from representations of the body, to the power of poetry to console, its role in mediating personal and cultural trauma, the neuroscience of emotions, and the growing use of poetry in medical curricula for diagnosis, empathy and ethics training, and developing coping skills for healers and healed alike. Instructor: Pope. One course.


171B. Popular Fictions (DS4). ALP One course. C-L: see Literature 151BS; also C-L: Women's Studies 172S

171C. Selected Topics in Feminist Studies (DS4). ALP Instructor: Staff. One course.

171ES. The Human Genome in Literature, Film, and the News (DS4). ALP, CZ, EI Structured around the challenges to the collective sense of what it means to be human posed by the genome sciences. Study how popular culture and mass media register and shape the public's response to social and cultural change. Special attention to how language, stories, pictures and visual technologies structure our experiences. Instructor: Wald. One course.

171GS. Existentialism Between Cultures. ALP, CCI, EI One course. C-L: see Literature 182AS

172AS. Special Topics in the History of Theory (CTM). ALP Topics in the history of theory of aesthetics, literary criticism, philosophy of language, Marxist Criticism, theory of drama, with a primary focus on materials prior to the mid-twentieth century. Instructor: Staff. One course.

172BS. Special Topics in Contemporary Theory (CTM). ALP Topics included: theory of film and the image; theory of race, gender, sexuality; Performance Studies, with a concentration on materials since 1945. Instructor: Staff. One course.

172C. Global Performance from late 1950s to the Present. ALP, CCI, CZ, EI One course. C-L: see Visual Studies 181; also C-L: Information Science and Information Studies 175, Literature 133C, Theater Studies 175A, Women's Studies 176

173. Special Topics in Language and Literature (DS1, DS2, DS3, or DS4, as determined by instructor). ALP Instructor: Staff. One course.
173S. Special Topics in Language and Literature (DS1, DS2, DS3, DS4, as determined by instructor). ALP Seminar version of English 173. Instructor: Staff. One course.

175S. Masculine Anxiety and Male-Male Desire in Drama and Film Since 1950. ALP, CCI One course. C-L: see Theater Studies 179S; also C-L: Literature 125AS, Visual Studies 128GS

176B. Theater in London: Text. ALP One course. C-L: see Theater Studies 116

176BS. Theater in London: Text (DS2, DS3, or DS4). ALP One course. C-L: see Theater Studies 116S

176C. Theater in London: Performance. ALP One course. C-L: see Theater Studies 151

177. Postcolonial Fiction (DS4). ALP, CCI Comparative study of representative contemporary fiction from Africa, India, the Middle East, Australia, New Zealand, Latin America, and the Caribbean, each within its appropriate cultural, historical, and political context. All readings in English. Instructor: Baucom, Khanna, Moses, Torgovnick, or Wallace. One course. C-L: International Comparative Studies 102B

178. Literature and the Other Arts (DS2, DS3, or DS4, as determined by instructor). ALP Selected topics in the study of the interrelation of literature and other art forms, such as music and painting. Instructor: Gopen or Khanna. One course.

179AS. Special Topics in a Literary Genre I (DS1). ALP Can be counted as a pre-1500 course for the diversified study requirement. Instructor: Staff. One course.

179BS. Special Topics in Literary Genre II (DS2). ALP Can be counted as a 1500-1660 course for the diversified study requirement. Instructor: Staff. One course.

179CS. Special Topics in Literary Genre III (DS3). ALP Can be counted as a 1660-1860 course for the diversified study requirement. Instructor: Staff. One course.

179ES. Special Topics in Literary Genre IV (DS4). ALP Can be counted as a 1860-Present course for the diversified study requirement. Instructor: Staff. One course.

179FS. Special Topics in Criticism, Theory, or Methodology (DS1/DS2/DS3/DS4, as determined by instructor). ALP Instructor: Staff. One course.

180. Introduction to African Studies (DS3 or DS4). ALP, CCI, CZ One course. C-L: see African and African American Studies 107; also C-L: Cultural Anthropology 136, History 115C, Political Science 174

181AS. Making Media (DS4). ALP, STS The changes experienced by print and visual media (book publishing, magazines, newspapers, TV, films, theatre, advertising) in the twenty-first century in how art and business can, and often must, be done and in how they interact with society. Examinations through readings (including selected case histories) and guest speakers of how technology and technological change affect art and society today. Instructor: Torgovnick. One course.


181C. Internship in New York. Immersion in the professional art world through apprenticeship to a sponsoring artist or organization. Students spend fifteen hours per week at the internship and write a substantive paper containing significant analysis and interpretation of the relation of the students' sponsoring institution to the art form of activity as a whole, the system of production and consumption surrounding that art form or activity, and the sponsor's organizational framework, operating mechanics, and role in the creation, preservation, or interpretation of the art form or activity. Open only to students admitted to
the Duke in New York Arts Program. Does not count toward the major. Consent of instructor required. Instructor: Staff. One course. C-L: Theater Studies 126

181E. The Business of City Life. A half-credit course to help place your internship in the business of city life. Saturday tours of city neighborhoods (Chinatown, Harlem, Lincoln Square, Central Park) that have been visibly and dramatically impacted by developments in the city's economic life and in cultural or public policy, with coordinated readings, lectures, and discussion. Topics to include global Chinese identity in Chinatown; gentrification in Harlem; non-profits and conservancies in Lincoln Square/Central Park, Disney in Times Square and Hell's Kitchen. Coordinated cultural events scheduled during evening hours. Open only to students in the Duke in New York: Summer Internships in the City program. Instructor: Torgovnick. Half course. C-L: Theater Studies 126A

181F. Duke in New York Arts and Media Independent Stud. Individual non-research directed study on a previously approved topic, under the supervision of a Duke faculty member, resulting in a substantive paper containing significant analysis and interpretation. Open only to students in the Duke in New York Arts and Media Program. Consent of Instructor required. Instructor: Staff. One course.

181GS. Arts Management, Media, Publishing, and Cultural Policy in Durham and Research Triangle. ALP, R Arts, media, publication, and other cultural venues in Durham and their interaction with the Research Triangle Park area more widely. Comparisons to New York and to European models. Readings such as Cultural Master Plan for Durham, Downtown Development Plan, Cultural Policy (Core Cultural Theorists series), and Selections from Critical Cultural Policy Studies: A Reader; guest speakers from the Durham area on campus; a few, selected site visits. Instructor: Torgovnick. One course.

183S. Introduction to Production. ALP, STS One course. C-L: see Film/Video/Digital 130S; also C-L: Theater Studies 173S, Visual Studies 117AS, Information Science and Information Studies

184. Political Economy of the Global Image. CCI, EI, SS, STS One course. C-L: see Literature 117; also C-L: Film/Video/Digital 109

185. Studies in Film History (DS4). ALP Close examination of a particular issue, period, national cinema, or technological development. Instructor: Clum, Gaines, or Jameson. One course. C-L: Theater Studies 172, Literature 116, Film/Video/Digital 105, Visual Studies 115A

186A. Conflict, Conflict Resolution, and Film. ALP, CCI, SS One course. C-L: see Film/Video/Digital 108; also C-L: Political Science 156, Literature 120C, Public Policy Studies 172, Visual Studies 117H

186B. Film Genres. ALP One course. C-L: see Film/Video/Digital 106; also C-L: Literature 120F, Art History 136, Visual Studies 117F

186C. American Film Comedy. ALP One course. C-L: see Film/Video/Digital 107; also C-L: Literature 120G, Visual Studies 117G

186ES. Experimental Filmmaking. ALP One course. C-L: see Film/Video/Digital 142S; also C-L: Visual Arts 146S

186FS. Intermediate Narrative Production. ALP One course. C-L: see Film/Video/Digital 150S; also C-L: Visual Arts 150S


189. Special Topics in Film (DS4). ALP A major genre, period, or director. Instructor: Staff. One course.

189S. Special Topics in Film (DS4). ALP A major genre, period, or director. Instructor: Clum, Gaines, or Moses. One course. C-L: Film and Video
191. **Independent Study.** Individual non-research creative writing project directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Open to juniors and seniors. Consent of both the instructor and the director of undergraduate studies required. Instructor: Staff. One course.

192. **Research Independent Study.** Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to juniors and seniors. Consent of both the instructor and the director of undergraduate studies required. Instructor: Staff. One course.

194T. **Tutorial.** Tutorials for two or more students working on related independent projects. May not be counted among the courses required for completion of the English major. Consent of instructor and director of undergraduate studies required. Instructor: Staff. Half course.

195T. **Tutorial (DS1, DS2, DS3, DS4, as determined by instructor).** Tutorials under the supervision of a faculty member for two or more students working on related independent projects. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

196S. **Special Topics in the United States Culture Industries.** ALP, R, W One course. C-L: see Literature 197S; also C-L: Film/Video/Digital 121S

197A. **Critical Independent Study.** ALP, R, W Open to those whose thesis will be a critical paper or piece of other research (for example, in linguistics). Consent of instructor required. Instructor: Staff. One course.

197BS. **Distinction Program Sequence.** ALP, W Open to those whose thesis will be in the field of creative writing. Application and consent of Program Director/instructor required. Instructor: Staff. One course.

198A. **Distinction Critical Independent Study.** ALP Open to those whose thesis will be a critical paper or piece of other research (for example, in linguistics). Consent of instructor required. Instructor: Staff. One course.

198B. **Distinction Program Sequence: Independent Study.** ALP Continuation of English 197B,S. Open to those whose thesis will be in the field of creative writing. Consent of instructor required. Instructor: Staff. One course.

**For Juniors, Seniors, and Graduates**

201S. **Writing Poetry: Formal and Dramatic Approaches.** ALP, W A workshop comparing meter, stanza, and rhyme with free verse, to illuminate the freedom and form of all poetry. Narrative and conceptual content considered within the poem's emotive, musical dynamic. Group discussion of technique, personal aesthetic and creative process; revisions of poems. Consent of instructor required. Instructor: Applewhite, Pope. One course.


205. **Semiotics and Linguistics (DS4).** ALP, CCI, R, SS One course. C-L: see Russian 205; also C-L: Linguistics 205

206. **Semiotics of Culture (DS4).** ALP, CCI, CZ, R One course. C-L: see Russian 202; also C-L: Cultural Anthropology 202

207A. **Introduction to Old English (DS1).** ALP An introduction to the language of the Anglo-Saxon period (700-1100), with readings in representative prose and poetry. Not open to students who have taken 113A or the equivalent. Instructor: Somerset. One course.
212S. Middle English Literature: 1100 to 1500 (DS1). ALP, CCI, R Selected topics. Instructor: Aers, Beckwith, or Somerset. One course. C-L: Medieval and Renaissance Studies 209S

213S. Chaucer and His Contexts (DS1). ALP, CCI, R The first two-thirds of his career, especially *Troilus and Criseyde*. Instructor: Aers, Beckwith, or Somerset. One course. C-L: Medieval and Renaissance Studies 213S


215S. Linguistics and Law (DS4). SS One course. C-L: see Linguistics 213S; also C-L: Cultural Anthropology 213S


221S. Renaissance Prose and Poetry: 1500 to 1660 (DS2). ALP, R Selected topics. Instructor: DeNeef, Quilligan, or Shannon. One course. C-L: Medieval and Renaissance Studies 221BS

231S. Domesticity, Gender and Realism in the Twentieth Century American Drama. ALP One course. C-L: see Theater Studies 231S


262. American Literature to 1820 (DS3). ALP Selected topics. Instructor: Cohen, Davidson, Jones, or Wald. One course.

271BS. Special Topics Seminar II (DS2). ALP Seminar version of 288. Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1500-1660 course for the diversified study requirement. Instructor: Staff. One course.

271C. Selected Topics in Feminist Studies (DS3 or DS4 as determined by instructor). ALP Instructor: Staff. One course.

271CS. Special Topics Seminar III (DS3). ALP Seminar version of 288. Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1660-1860 course for the diversified study requirement. Instructor: Staff. One course.

271ES. Special Topics Seminar IV (DS4). ALP Seminar version of 288. Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1860-Present course for the diversified study requirement. Instructor: Staff. One course.

271FS. Special Topics Seminar in Criticism, Theory, or Methodology (DS1, DS2, DS3, or DS4). ALP Seminar version of 288. Instructor: Staff. One course.

280. Twentieth-Century Reconceptions of Knowledge and Science (DS4). ALP, STS One course. C-L: see Literature 260; also C-L: Information Science and Information Studies

284. Contemporary Film Theory (DS4). ALP Post-1968 film theory—Brechtian aesthetics, cinema semiotics, psychoanalytic film theory, technology, feminist theory, and
Third World cinema. Instructor: Gaines. One course. C-L: Literature 282, Film/Video/Digital

288A. Special Topics I (DS1). ALP Subjects, areas, or themes that cut across historical eras, several national literatures, or genres. Can be counted as a pre-1500 course for the diversified study requirement. Instructor: Staff. One course.

288B. Special Topics II (DS2). ALP Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1500-1660 course for the diversified study requirement. Instructor: Staff. One course.

288C. Special Topics III (DS3). ALP Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1660-1860 course for the diversified study requirement. Instructor: Staff. One course.

288E. Special Topics IV (DS4). ALP Subjects, areas or themes that cut across historical eras, several national literatures, or genres. Can be counted as a 1860-Present course for the diversified study requirement. Instructor: Staff. One course.

288F. Special Topics in Criticism (DS3 or DS4). ALP Instructor: Staff. One course.

299S. Special Topics in Linguistics. CCI, SS Instructor: Staff. One course.

THE MAJOR

The English major is designed to convey to students a broad knowledge of English, American, and Anglophone literature, a sophisticated habit of critically engaging literary and cultural texts, a shared understanding of major problems, trends, and methods of literary and cultural analysis, and the ability to pose questions and organize knowledge in productive and original ways. While offering students clear direction on how to profit most from their study within the English department, the major also seeks to encourage students to assume an enduring habit of questioning and intellectual self-articulation. Each of the four areas of requirement for completion of the major thus invites students, in consultation with their advisor, to devise a coherent, challenging, and intellectually distinctive plan of study.

For students matriculating in the fall 2003 semester and thereafter, the requirements for the major are as follows:

**Gateway Course.** Students must select one of the following three courses, and complete it by or before the end of the junior year:

A. English 90AS. Readings in Genre
B. English 90B. Reading Historically
C. English 90BS. Reading Historically Seminar

Each student must take at least nine additional courses at the 100 level or above. Five of these courses must satisfy the following requirements:

**A.) Diversified Study**

Students must select at least one course in each of the following areas. Courses must be chosen from more than one national literature. Courses that appear in more than one area of study may only count for one designated area as determined by instructor.

- DS1. Literary and Cultural Study pre-1500
- DS2. Literary and Cultural Study 1500-1660
- DS3. Literary and Cultural Study 1660-1860
- DS4. Literary and Cultural Study 1860 to the present

**B.) Criticism, Theory, Methodology**

Students must select one course on criticism, theory, or methodology. The following courses satisfy this requirement: English 101A (Introduction to Film); English 101B (Introduction to Cultural Studies); English 111 (Introduction to Linguistics); English 112 (Historical Linguistics); English 115 (Gender and Language); English 172 (Literary Theory).
Recommendations: Students planning to enter graduate study in an English department should take additional courses from the early as well as later and modern periods. If eligible, they should also apply for the Distinction Program. Aspiring graduate students should consult their advisor.

THE MINOR

Requirements. Five courses at or above the 100 level; or English 90AS, 90BS, or 90B four of which must be at or above the 100 level. One of the 100-level courses must be a designated seminar. Only one of the five courses may be taken at an institution other than Duke. Advanced Placement credits and pass/fail courses may not be used.

Foreign Languages

The department recommends that students majoring in English complete at least two years of college-level study, or the equivalent, of a foreign language. Students contemplating graduate work in English should note that many master's programs require examination in one foreign language and that doctoral programs commonly require examination in two. Students interested in linguistics are strongly urged to study at least one non-Indo-European language.

Teacher Certification

Each year a number of Duke English majors earn certificates as secondary school teachers. While licensed by the state of North Carolina, these majors are essentially certified for other states as well. Also, such training is urged for those who consider teaching in independent schools, since most private or parochial schools would prefer candidates who have earned teaching certificates.

Such certification may be gained as part of the English major and is not as time-consuming as is sometimes believed. Candidates should have a solid background in both American and British literature; also helpful are courses in composition and cultural studies. Among the requirements are one course in linguistics (English 111, 112, 115, 119, 205, 208, or 209), an appropriate course in psychology, and several courses in education.

The last semester of the senior year is devoted to the student-teaching block, including two special, accelerated courses and ten weeks of full-time teaching and observation in the schools, working with a mentor-teacher and with Duke faculty. This experience leads to an English-teaching certificate to accompany the bachelor's degree.

Anyone considering secondary school English teaching should confer with the director of secondary school teacher preparation in the Program in Education as soon as possible.

Departmental Graduation with Distinction

The graduation with distinction program is designed for the department's most serious students, whose coursework and achievements have prepared them for a sustained and significant writing project. The program consists of two courses—either independent studies taken over successive terms or a “home seminar” (see below) to be followed by an independent study. The completed honors thesis is typically a sustained, well-researched, and carefully revised piece of writing (approximately 70 pages or more).

Whereas the standard major in English asks for a total of ten courses, students pursuing honors in English will take nine courses plus two independent studies/seminars for the honors thesis. The department encourages students to commence with an honors project in the spring term of their junior year. Research and mentoring support may be available through the department and Trinity College during the intervening summer. Students beginning during the spring semester of their junior year will conclude their thesis project by the end of the fall term of their senior year. Alternatively, students may use both terms of their senior year to undertake an honors project.

Home Seminar. As an alternative to the independent study, students wanting to write an honors thesis should consider approaching a faculty teaching a seminar (100-level or higher) on a topic that is clearly related to their proposed thesis project. With the permission
of the faculty member, the student may enroll in that seminar and, under the guidance of
the instructor, conduct research and write a long chapter (approximately 35 pages) towards
their thesis project rather than the standard writing assignments.

In order to be admitted to the distinction program, students must provide two copies of
the following materials and meet the criteria below:

- A 3.5 or higher G.P.A. in the major
- A writing sample from an English course (approximately 10 pages)
- Application cover sheet; see http://www.duke.edu/web/english/undergraduate/forms.htm.
- A letter of recommendation from a full-time English faculty member with whom
  the student has taken a class; see http://www.duke.edu/web/english/undergraduate/forms.htm.
- A project description and basic bibliography (1 page single-spaced)
- Copies of these materials must be submitted both to the director of undergraduate
  studies and to the faculty member who is to direct the first installment of the
  guided research/independent study by Nov. 15 (for a Spring-to-Fall honors
  project) or March 31 (for a Fall-to-Spring honors project).

Upon approval by the instructor, a copy of the completed honors thesis is to be
submitted to the director of undergraduate studies by December 1 (for a Spring-to-Fall
honors project) or March 10 (for a Fall-to-Spring honors project) of the senior year. The
earlier deadline during the Spring term is necessary so as to ensure that all distinction
projects can be considered for university-wide prizes. The director of undergraduate
studies and his/her advisory committee will evaluate all honors theses and award
distinction, high distinction, highest distinction, or none of these if the work is unsatisfac-
tory. Levels of distinction are based on the quality of the completed work. Theses awarded
distinction will be bound and deposited in Perkins library. Students who have done
satisfactory work in the seminars but whose thesis is denied distinction will simply receive
graded credit for their seminars and/or independent studies.

**The Distinction Program in Creative Writing.** The Distinction Program in Creative
Writing is designed for the department's best and most serious writers whose coursework
at Duke has prepared them to make a sustained and successful commitment to a distinction
project in creative writing. The program consists of one seminar, English 197BS, taken in
the fall semester 2007 and one independent study, English 198BS, with the thesis advisor
in the spring 2008. English 197BS varies in content and format according to the interests
of the instructor and students. It will provide a forum in which to discuss work-in-progress.
English 198BS will involve substantial independent work toward completing the thesis, and
regular conferences with the instructor.

To be eligible to apply, students must have completed, by the beginning of the senior year,
least five 100-level courses in English and must have a minimum 3.5 average in their
English courses. In addition, applicants must submit a writing sample and two recommenda-
tions from members of the English Department faculty. Applicants for the Distinction
Program in Creative writing will be expected to have taken preparatory coursework from
Duke's creative writing faculty.

The thesis must be submitted near the end of the spring semester 2008. Appropriate faculty
will evaluate the theses and award distinction. A student who has done satisfactory work in
the seminars but whose thesis is denied distinction will receive graded credit for the two-
course distinction program, but not distinction. Please note that neither of the two courses
may count toward the English major. Theses awarded distinction will be bound and
deposited in Perkins Library.
Environmental Sciences and Policy Program (ENVIRON)

Professor Klein, Director of Undergraduate Programs

Two majors are offered within the program, leading to either the Bachelor of Arts degree or the Bachelor of Science degree within Trinity College of Arts and Sciences. A minor in Environmental Sciences and Policy is also offered.

The majors are administered by the Nicholas School of the Environment and Earth Sciences. Courses for the majors are taught by Nicholas School faculty and Duke professors in cooperating departments and schools. The degrees are administered by undergraduate directors and advisory committees representing the various areas and cooperating departments. For additional information, consult the program Web site, at www.nicholas.duke.edu/programs/undergrad.

ENVIRONMENTAL SCIENCES AND POLICY (A.B. DEGREE)

The undergraduate major in environmental sciences and policy is offered within the Bachelor of Arts degree to students interested in the interdisciplinary study of environmental issues. The major permits students to combine studies in the natural sciences and engineering with courses in social sciences and humanities around general focus areas and themes. This major is designed for students with career objectives such as environmental law, policy, science, management, or planning that require in-depth understanding of environmental issues that cross disciplinary boundaries. The prerequisites for the A.B. degree stress a firm foundation in basic natural, environmental, and social science areas. An intermediate core course focuses on local, regional, and global case studies taught by interdisciplinary teams of faculty. Upper-level courses are selected in consultation with advisors to match a specific environmental theme or career objective. The upper-level curriculum includes a course in probability and statistics, a policy course, and an independent study, internship, or field experience. At least two courses in the upper-level curriculum must be selected from approved lists in each of the social sciences/humanities and sciences/engineering areas.

Advising. Advisors are assigned based on students' general areas of interest. Students present a proposed plan of study to their advisors that explains the rationale for their chosen area of concentration and emphasizes the connections among their courses. The program encourages close relationships between faculty and students with convergent interests.

Independent Study, Internship, or Field Experience. Students pursuing the A.B. degree complete either an independent study, internship, or a field experience related to their proposed course of study. The director's office, in collaboration with Duke's Career Development and Counseling Office, maintains information on available internships. Field experiences may include a semester or summer session at the Duke University Marine Laboratory, participation in field-oriented study abroad programs, or studies at over thirty approved field laboratories.

ENVIRONMENTAL SCIENCES (B.S. DEGREE)

The undergraduate major in environmental sciences is offered within the Bachelor of Science degree to students interested in a scientific perspective on environmental issues. The major is designed to encourage breadth in the physical and life sciences and depth in a chosen area of scientific concentration. This major is designed for students with career objectives in environmental sciences, industry or management that require a strong scientific background, or for students intending to pursue graduate degrees in environmental sciences. The major also merges well with pre-medical requirements. The prerequisites for the B.S. degree stress a firm foundation in the physical and life sciences and mathematics. The major requirements include five core courses selected from six course options that focus on the biosphere, the atmosphere, the hydrosphere, the solid earth, chemical cycling, and the interface between humans and the environment. The major also
includes a course in probability and statistics. The Focused Study consists of three upper-level natural science, engineering or mathematics courses proposed by the student in consultation with their advisor to form a concentration area.

25. Introduction to Environmental Sciences and Policy. NS, STS An introduction to the study of environmental sciences and policy through exploration of basic environmental principles in the life, physical, and social sciences. Emphasis on understanding how the atmosphere, hydrosphere, lithosphere, cryosphere, and biosphere function, and how these spheres interact with human consumption, production, and technological patterns and processes. Field trips to a local site as well as the Duke University Marine Laboratory. Instructors: Christensen or Meyer. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

50. Duke-Administered Study Abroad: Special Topics in Environmental Sciences and Policy. Topics differ by section. Instructor: Staff. One course.

65. Microeconomics for Environmental Science and Policy. SS, STS Standard principles of microeconomics course with non-calculus-based applications to environmental and resource economics. Topics include supply and demand functions, consumer and producer surplus and deadweight loss, opportunity cost, marginal analysis, time discounting, market functions, and market failures. Applications of microeconomics to environmental science and policy including cost-benefit analysis, cost-effectiveness analysis, and environmental and natural resource management. Instructor: Staff. One course.

99FCS. Topics in Environment. Topics vary semester to semester. Only open to students in the Focus Program. Consent of Instructor required. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Environmental Sciences and Policy. Topics differ by section. Instructor: Staff. One course.

101. Integrating Environmental Sciences and Policy. NS, SS, STS, W Interaction between the natural and the social systems as they relate to the environment. Focus on ecological and earth system cycles, processes, and fundamental relationships. The environmental impact of human-induced change at the local, regional, and global levels. The role of technology and the policy process in determining how environmental problems evolve and are addressed. Use of ethical analysis to evaluate environmental tradeoffs. Use of case studies to integrate multiple disciplinary perspectives on environmental problems and to address issues of environmental justice. Not open to first year students. Prerequisite: Environment 25 or consent of instructor. Instructor: Miranda. One course.

103D. Conserving the Variety of Life on Earth. NS, SS An overview of biological diversity, its patterns, and the current extinction crisis. Historical and theoretical foundations of conservation, from human values and law to criteria and frameworks for setting conservation priorities; island biogeography theory, landscape ecology, and socioeconomic considerations in reserve design; management of endangered species in the wild and in captivity; managing protected areas for long term viability of populations; the role of the landscape matrix around protected areas; and techniques for conserving biological diversity in semi-wild productive ecosystems such as forests. Instructor: Pimm. One course.

105S. Ethical Challenges in Environmental Conservation. EI, SS, W Ethical challenges in environmental conservation. Topics include the philosophical basis and challenges of mankind’s responsibility to the natural world; prioritization of often conflicting conservation efforts; balancing the needs of humans and the environment; the disputed role of scientists as advocates; and the philosophical and political obstacles to conservation efforts. Case studies on local and global issues, especially on the intersection of science and policy. Instructor: Vidra. One course.

110L. Ecology. NS, R Physical, chemical, and biological processes that determine the distribution and abundance of plants and animals, emphasizing physiological responses, population dynamics, species interaction, biogeography, nutrient cycling, and energy flow
through food webs. Laboratory includes fieldwork. Prerequisites: Biology 25L and Mathematics 31. Instructor: Reid. One course. C-L: Biology 110L, Visual Studies 116A

114L. Biological Oceanography. NS, R Variable credit. C-L: see Biology 114L; also C-L: Marine Sciences

115. Environment as Community. SS One course. C-L: see Sociology 115

123. Analysis of Ocean Ecosystems. NS One course. C-L: see Biology 123; also C-L: Marine Sciences

126S. Field Methods in Earth and Environmental Sciences. NS, R, W One course. C-L: see Earth and Ocean Sciences 126S

128. Conservation and Management of Protected Areas in South Africa. CCI, SS Management of wildlife and natural resources within the ecological, political, social, historical, and economic context of South Africa. (Taught in South Africa.) Instructor: McClearn. One course.

129. Environmental Science and Policy of the Tropics. EI, NS, SS, STS Investigates major environmental issues facing tropical nations using concepts from the natural and physical sciences, the social sciences, and resource management. Topics include: climatic and biogeographical patterns, trends in human population size and demography, historical and contemporary issues in resource use and conservation, and sociological and ethical concerns regarding the source and distribution of economic wealth. (Given in Costa Rica.) Prerequisite: introductory biology. Instructor: Shelly. One course. C-L: International Comparative Studies 103C

130. Energy and the Environment. NS, SS, STS Overview of the challenges confronting humanity as a consequence of our reliance on energy. Challenges include dwindling supplies, rising demand and environmental degradation. Realistic responses require an understanding of the complexity of the energy system, including energy resources, uses, and impacts, in the context of social, political and economic imperatives. Lectures will be augmented by presentations from guest speakers from industry, government and non-profit organizations. Instructor: Pratson. One course. C-L: Earth and Ocean Sciences 130

131. World Trade In Energy and Mineral Resources. EI, SS, STS Exploration of the physical, economic and geopolitical flow of energy and mineral resources around the world. Topics include examination of economically important energy and mineral resources, their uses, geologic/geographic distribution, and influence on the economic and political organization of and interaction between nations. The trade of energy and mineral resources explored in light of current demand, remaining supplies, technical and geopolitical accessibility, refining and distribution systems, and pricing, as well as the environmental impacts and future challenges facing continued use of these resources. Prerequisite: Earth and Ocean Sciences 11 or 12 or Environment 25. Instructor: Pratson. One course. C-L: Earth and Ocean Sciences 131

132S. Current Topics in Oceanography and Marine Biology. NS Topics including the Iron Hypothesis, toxic algal blooms, and UV light considered through readings in the primary literature and student presentations. Emphasis on critical analysis of methodology, data analysis, and conclusions in primary peer-reviewed literature. (Given at Bermuda.) Prerequisite: introductory biology. Instructor: Staff (Bermuda). Half course. C-L: Marine Sciences

133S. Molecular Approaches to Questions of Physiology, Ecology, and Evolution in the Marine Environment. NS Half course. C-L: see Biology 133S; also C-L: Marine Sciences

134S. Hands on Habitats: Life in Coastal Communities. NS, STS Natural history and community ecology of coastal habitats. Focus on natural communities and artisan/commercial fishing practices in the coastal ocean, barrier islands, sounds and estuaries. Critical habitats; nursery areas, nesting beaches and rookeries. Commercially important, keystone as well as introduced and endangered vertebrate and invertebrate species.
Concurrent enrollment in Humans and the Coast. Instructor: Rittschof. One course. C-L: Marine Sciences

135. **Biology and Conservation of Sea Turtles.** NS, STS One course. C-L: see Biology 125; also C-L: Marine Sciences

135L. **Biology and Conservation of Sea Turtles.** NS, STS One course. C-L: see Biology 125L; also C-L: Marine Sciences

139L. **Marine Ecology.** NS, R, W One course. C-L: see Biology 129L; also C-L: Marine Sciences

141S. **Humans and Development of North Carolina Coasts.** SS, STS Human behaviors, laws and policies that affect development related to coasts and coastal oceans. Leisure tourism development of barrier islands and sounds. Special interests, social groups, political groups and cross cultural conflicts and their resolution. Concurrent enrollment with Hands on Habitats. Instructor: Orbach. One course. C-L: Marine Sciences

146S. **Science and Technology Policy.** SS, STS Review of major political, international, and technical factors which led to current world leadership of the United States in research and development. Examination of trends in federal and industry funding. Reasons for the federal government funding research, ways federal funds should be allocated, relationships among industry, government, and academia. Several current policy issues selected for in-depth analysis. Instructor: Ahearne. One course. C-L: Public Policy Studies 164S

149. **United States Environmental Policy.** EI, SS, STS, W An overview of the major environmental legislatation in the United States. Topics include: air and water pollution, hazardous waste, agriculture, wildlife, and institutions. Political, economic, ethical, and scientific analysis. Consent of instructor required. Instructor: Gallagher or staff. One course. C-L: Public Policy Studies 149, Health Policy

151L. **Marine CSI - Conservation Forensics in the Marine Environment.** NS, R, STS Application of forensic genetic techniques to the study of marine crime. Reveal marketing frauds, mislabeling of seafood, and fishing violations using modern molecular forensic tools. Field trips to acquire samples for forensic analysis from local fishermen, retailers and restaurants; hands-on forensic genetics lab work and group assignments. Techniques include microsatellites and restriction fragment length polymorphism. Statistical approaches to forensics and species/population identity and assignment tests. (Given at Beaufort) Prerequisites: Introductory Biology. Instructor: Carlsson. One course.

159. **Fundamentals of GIS and Geospatial Analysis.** NS, QS Fundamental aspects of geographic information systems and satellite remote sensing for environmental applications. Concepts of geographic data development, cartography, image processing, and spatial analysis. Prerequisite: an introductory statistics course. Instructor: Halpin. One course. C-L: Earth and Ocean Sciences 159

160. **Environmental Chemistry and Toxicology.** NS, STS An overview of the fate and effects of chemicals in the environment. Topics include chemical characterization of pollutants, chemistry of natural waters, soil sediment chemistry, atmospheric chemistry, transfers between and transformations within environmental compartments, toxicokinetics, cellular metabolism, biological levels of organization, and approaches for assessing chemical hazards. Incorporates case studies focused on human health and ecosystem protection. Prerequisite: Biology 25L; Chemistry 21L and 22L; Chemistry 151L; Mathematics 31. Instructor: Stapleton and Di Giulio. One course.

161. **Science and Policy of Natural Catastrophes.** NS, SS, STS One course. C-L: see Engineering 60; also C-L: Public Policy Studies 107

162. **Natural Catastrophes: Rebuilding from Ruins.** NS, SS, STS One course. C-L: see Engineering 61; also C-L: Public Policy Studies 109

163. **Economics of the Environment.** SS, STS One course. C-L: see Economics 163; also C-L: Health Policy
168. Biogeography in an Australian Context. NS, STS One course. C-L: see Biology 101; also C-L: Earth and Ocean Sciences 168

175. Marine Policy. EI, SS, STS Policy and policy-making concerning the coastal marine environment. History of marine-related organizations, legislation, and issues and their effects on local, regional, national, and international arenas. Use of theoretical and methodological perspectives, including political science, sociology, and economics. (Given at Beaufort.) Instructor: Orbach. One course.

176AL. Marine Invertebrate Zoology. NS, R Variable credit. C-L: see Biology 176AL; also C-L: Marine Sciences

179. Introduction to Atmospheric Chemistry. NS, STS Integrated scientific background for the impact of humans on the natural environment. Topics covered include greenhouse gases and climate, local and regional ozone pollution, long-range pollution transport, acid rain, atmospheric particulate matter pollution, and stratospheric ozone depletion. Prerequisites: Chemistry 21 and 22. Instructor: Kasibhatla. One course.

181. Special Topics in Environmental Sciences and Policy. Content to be determined each semester. Consent of instructor required. Instructor: Staff. One course.

181S. Special Topics in Environmental Sciences and Policy. Same as Environ 181, taught as seminar. Instructor: Staff. One course.

182. Special Topics in Environmental Sciences and Policy. Content to be determined each semester. Consent of instructor required. Instructor: Staff. One course.

185. Senior Capstone Course. NS, R, SS, STS Interdisciplinary and in-depth study of contemporary environmental issues. Content to be determined each semester. Consent of Instructor required. Instructor: Staff. One course.

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to qualified juniors and seniors with consent of instructor and director of undergraduate studies. Instructor: Staff. One course. C-L: Marine Sciences


192. Independent Study. Individual readings course or other non-research-based independent course under the supervision of a faculty member, resulting in an academic product. Open to qualified juniors and seniors with consent of instructor and director of undergraduate studies. Instructor: Staff. One course. C-L: Marine Sciences

197. South African Ecosystems and Diversity. NS, STS One course. C-L: see Biology 137

198L. Field Research in Savana Ecology. NS, R, W One course. C-L: see Biology 138L

For Upper-level Undergraduate and Graduate Students

The courses listed below are open to undergraduates by consent of the instructor.

200. Integrated Case Studies. A group of two to four students may plan and conduct integrated research projects on a special topic, not normally covered by courses or seminars. A request to establish such a project should be addressed to the case studies director with an outline of the objectives and methods of study and a plan for presentation of the results to the school. Each participant's adviser will designate the units to be earned (up to six units) and evaluate and grade the work. Instructor: Staff. Variable credit.

201. Forest Resources Field Skills. Introduction to field techniques commonly used to quantify and sample forest resources: trees, soils, water, and animal resources. Dendrology, vegetation sampling, soil mapping, river flow estimation, field water quality sampling, surveying, and use of compass. Instructor: Richter.
203. Conservation Biology: Theory and Practice. An overview of biological diversity, its patterns, and the current extinction crisis. Historical and theoretical foundations of conservation, from human values and law to criteria and frameworks for setting conservation priorities; island biogeography theory, landscape ecology, and socioeconomic considerations in reserve design; management of endangered species in the wild and in captivity; managing protected areas for long term viability of populations; the role of the landscape matrix around protected areas; and techniques for conserving biological diversity in semiwild productive ecosystems like forests. Three field trips. Prerequisite: one ecology course or consent of instructor. Instructor: Pimm.

204LS. Field Ecology. NS, R C-L: see Biology 204LS; also C-L: Marine Sciences
205L. Ecological Management of Forest Systems (Silviculture). The aim of the course is to equip future resource managers and environmental consultants with knowledge allowing them to propose lower impact practices to individuals and organizations who need to balance wood production with maintenance of environmental quality. Underlying principles of growth, from seed to mature trees, and stand dynamics are explored. Various alternative methods of manipulating growth, stand structure and development, ranging from little to large perturbations of forest systems, are presented and assessed in terms of their effect on resource quality. Includes laboratory. Instructor: Oren.

206. Forest Vegetation Sampling. Theory and application of forest vegetation sampling. Direct and indirect estimation methods that range from timber cruising and inventory to sampling for species composition. Laboratory applications in Duke Forest to include over- and understory vegetation. Instructor: Doggett.


207L. Forest Health Management. Fundamentals of forest fire management, entomology and plant pathology (including air pollution and chemical damage) related to understanding their impacts on forest productivity and forest management. Regional case examples and complexes are evaluated in terms of pest-population, forest-stand dynamics; economic and societal constraints; treatment strategies; monitoring systems; and benefit-cost analysis. Approach seeks to develop predictive capabilities in long range pest management and decision making. Field oriented lab focuses on diagnostics and impact analysis. Instructor: Doggett.

210. Applied Data Analysis for Environmental Sciences. QS Graphical and exploratory data analysis; modeling, estimation, and hypothesis testing; analysis of variance; random effect models; nested models; regression and scatterplot smoothing; resampling and randomization methods. Concepts and tools involved in data analysis. Special emphasis on examples drawn from the biological and environmental sciences. Students to be involved in applied work through statistical computing using software, often S-plus, which will highlight the usefulness of exploratory methods of data analysis. Other software, such as SAS, may be introduced. Instructor: Qian. C-L: Statistics and Decision Sciences 240

212. Environmental Toxicology. Study of environmental contaminants from a broad perspective encompassing biochemical, ecological, and toxicological principles and methodologies. Discussion of sources, environmental transport and transformation phenomena, accumulation in biota and ecosystems. Impacts at various levels of organization, particularly biochemical and physiological effects. Prerequisites: organic chemistry and vertebrate physiology or consent of instructor. Instructor: Di Giulio.

213. Forest Ecosystems. Emphasis on the processes by which forests circulate, transform, and accumulate energy and materials through interactions of biologic organisms and the forest environment. Ecosystem productivity and cycling of carbon, water, and nutrients provide the basis for lecture and laboratory. Instructor: Oren.

214. Landscape Ecology. Emphasis on the role of spatial heterogeneity in terrestrial systems: its detection and description, agents of pattern formation, landscape dynamics and
models, and the implications of heterogeneity of populations, communities, and ecosystems. Prerequisites: an intermediate-level ecology course, introductory applied statistics, and Environment 351, or consent of instructor. Instructor: Urban.


217. Tropical Ecology. NS, STS Ecosystem, community, and population ecology of tropical plants and animals with application to conservation and sustainable development. Prerequisite: a course in general ecology. Instructor: Staff. C-L: Biology 215, Latin American Studies

218L. Barrier Island Ecology. NS, R An integration of barrier island plant and animal ecology within the context of geomorphological change and human disturbance. Experimental evidence supporting the theory of barrier island formation and migration; plant and animal adaptations and their evolution, succession ecology, and conservation and restoration ecology. Strong emphasis in labs on independent use of quantitative field observation and research techniques. (Given at Beaufort.) Prerequisite: Biology 25L or equivalent; suggested: course in botany or ecology. Instructor: Staff. C-L: Biology 218L, Marine Sciences

221L. Soil Resources. Emphasis on soil resources as central components of terrestrial ecosystems, as rooting environments for plants, and as porous media for water. Soil physics and chemistry provide the basis for the special problems examined through the course. Laboratory emphasizes field and lab skills, interpretive and analytical. Instructor: Richter.

224L. Coastal Ecosystem Processes. NS Physical, chemical, and biological processes in the coastal zone of the Carolinas. A unifying theme will be the coupling of watersheds, river basins, estuaries, and the coastal ocean through the movement of ground and surface waters. Topics include hydrology, nutrient cycles, sediment-water column interactions, primary and secondary production, and food web dynamics. Sustaining coastal ecosystems in the face of land use change. (Given at Beaufort). Instructors: Ramus and staff. C-L: Biology 219L, Marine Sciences

225. Coastal Ecotoxicology & Pollution. NS Nonlab version of Environ 225L. Principles of transport, fates, food-web dynamics and biological effects of pollutants in the marine environment. No laboratories. Short local field trips possible. (Given at Beaufort.) Prerequisites: introductory chemistry and biology. Instructor: C. Bonaventura. C-L: Marine Sciences

225L. Coastal Ecotoxicology and Pollution. Principles of transport, fates, food-web dynamics and biological effects of pollutants in the marine environment. Laboratory to stress standard techniques for assessing pollutant levels and effects. (Given at Beaufort.) Prerequisites: introductory chemistry and biology. Instructor: Staff. C-L: Marine Sciences

230L. Weather and Climate. Overview of the science of meteorology and principles of climatology, especially as applied to problems in ecology and natural resource management. Emphasis on the processes and characteristics of weather phenomena and local and regional climates. General introduction to sources of climatic data and climatic data analysis. Includes laboratory. Instructor: Knoerr.

231L. Models for Environmental Data. NS C-L: see Biology 268L; also C-L: Information Science and Information Studies

234L. Watershed Hydrology. Introduction to the hydrologic cycle with emphasis on the influence of land use, vegetation, soil types, climate, and land forms on water quantity and quality and methods for control. Development of water balance models. Analysis of precipitation patterns, rainfall and runoff, and nonpoint source impacts. Statistical handling
and preparation of hydrologic data, simulation and prediction models, introduction to groundwater flow, laboratory and field sampling methods. Instructor: Katul.


239. **Human Health and Ecological Risk Assessment.** Topics central to both health and ecological risk assessment are explored. Basic concepts of hazard identification, dose-response relationships, exposure assessment, and risk characterization and communication are discussed in the context of both human health and environmental assessment. The basis and rationale for using specific, as well as extrapolated, scientific information and expert judgment, and the strengths and weaknesses of alternative approaches, are evaluated. Applications emphasizing real cases are used to illustrate the interdisciplinary process and products of risk assessment, as well as the regulatory use of the information. Group projects emphasized. Instructors: Mihaich and McMasters.

240. **Chemical Fate of Organic Compounds.** Equilibrium, kinetic, and analytical approaches applied to quantitative description of processes affecting the distribution and fate of anthropogenic and natural organic compounds in surface and groundwaters, including chemical transfers between air, water, soils/sediments, and biota; and thermochemical and photochemical transformations. The relationships between organic compound structure and environmental behavior will be emphasized. Sampling, detection, identification, and quantification of organic compounds in the environment. Prerequisites: university-level general chemistry and organic chemistry within last four years. Instructor: Stapleton. C-L: Civil Engineering 240

242. **Environmental Aquatic Chemistry.** C-L: see Civil Engineering 242

243. **Respiratory Proteins and the Environment.** C-L: see Cell Biology 243; also C-L: Marine Sciences


248. **Solid Waste Engineering.** C-L: see Civil Engineering 248

251D. **International Conservation and Development.** CCI, SS Interrelated issues of conservation and development. Topics include the evolution of the two concepts and of theories regarding the relationship between them, the role of science, values, ethics, politics and other issues in informing beliefs about them, and strategies for resolving conflicts between them. While attention will be given to all scales of interaction (i.e. local, regional, national, international), the focus will be on international issues and the 'north-south' dimensions of the conservation and development dilemma. Examples from marine and coastal environments will be highlighted. Consent of instructor required. (Given at Beaufort.) Instructor: Campbell.
1. **Applied Regression Analysis. QS** Linear regression using both graphical and numerical methods. Model construction, critique, and correction using graphical residual analysis. One-way and two-way analysis of variance; introduction to design of experiments. Use of a standard statistical software package. Applications and examples drawn from various sources, emphasizing the biological and environmental sciences. Prerequisite: Statistics 210B or equivalent. Instructor: Qian. C-L: Statistics and Decision Sciences 242

2. **Seminar in Ocean Sciences.** Biological, chemical, physical, and geological aspects of the ocean and their relation to environmental issues. Consent of instructor required. (Given at Beaufort.) Instructor: Staff. C-L: Marine Sciences

3. **Biodiversity Science and Application. NS, R** C-L: see Biology 267L

4. **Applied Differential Equations in Environmental Sciences.** General calculus and analytic geometry review; numerical differentiation and integration; analytic and exact methods for first and second order ordinary differential equations (ODE); introduction to higher order linear ODE, numerical integration of ODEs and systems of ODEs; extension of Euler's method to partial differential equations (PDE) with special emphasis on parabolic PDE. Example applications include population forecasting, soil-plant-atmosphere water flow models, ground water and heat flow in soils, and diffusion of gases from leaves into the atmosphere. Prerequisite: Mathematics 31 or equivalent or consent of instructor. Instructor: Katul.

5. **Conservation Biology of Marine Mammals.** Examination of issues affecting the conservation of marine mammal populations, including: habitat loss and degradation, interactions with commercial fisheries, and direct harvests. Consent of instructor required. (Given at Beaufort.) Instructor: Read. C-L: Marine Sciences


7. **Economic Analysis of Resource and Environmental Policies. SS** Case and applications oriented course examining current environmental and resource policy issues. Benefits and costs of policies related to sustaining resource productivity and maintaining environmental quality will be analyzed using economic and econometric methods. Topics include benefit-cost analysis, intergenerational equity, externalities, public goods, and property rights. Prerequisite: Environment 270 or equivalent; Economics 149 recommended. Instructor: Kramer. C-L: Economics 272

8. **Evaluation of Public Expenditures. SS** C-L: see Public Policy Studies 261; also C-L: Economics 261, Health Policy

9. **Marine Fisheries Policy. SS** Principles, structure, and process of public policy-making for marine fisheries. Topics include local, regional, national, and international approaches to the management of marine fisheries. A social systems approach is used to analyze the biological, ecological, social, and economic aspects of the policy and management process. (Given at Beaufort.) Instructor: Orbach. C-L: Marine Sciences

10. **Environmental Politics. SS** Environmental policy formation and implementation in comparative perspective. Topics include interest groups, environmental movements and parties, public opinion, political systems and institutions. Case students selected from the United States and other advanced industrialized countries and the developing world. Spring. Instructor: Weinthal. C-L: Public Policy Studies 274, Health Policy

11. **Marine Policy. SS, STS** Formal study of policy and policy-making concerning the coastal marine environment. History of specific marine-related organizations, legislation, and issues and their effects on local, regional, national, and international arenas. Topics explored through use of theoretical and methodological perspectives, including political
290 Courses and Academic Programs

science, sociology, and economics. Consent of instructor required. (Given at Beaufort.)
Instructor: Orbach. C-L: Public Policy Studies 297, Political Science 264, Marine Sciences

278. Lessons from Watershed Management in California: Seeing the Big Picture. NS, R, SS, STS
Watershed formed by Sacramento and San Joaquin Rivers. History of competing
interests and conflicts. Bay Delta Accord and coalition of federal and state agencies
(CALFED) management to assure ecological integrity and water supply availability.
Geography, stressors, legal claims for water, and attempts to store snowmelt in winter for
dispersal throughout year. Instructor: Hinton.

280. Social Science Surveys for Environmental Management. Social science research
methods for collecting data for environmental management and policy analysis. Sampling,
survey design, focus groups, pretesting, survey implementation, coding, and data analysis.
Team projects emphasize development and practice of survey skills. Prerequisite:
introductory applied statistics or equivalent. Instructor: Kramer.

281. Environmental Law. Examination of contemporary environmental law and its
common law antecedents in the context of the American legal system. Objectives are to
provide basic training in analyzing cases and statutes, applying knowledge in a classroom
setting, and using a law library. Instructor: Heath.

284S. Seminar in Land Use Policy. Selected topics in United States land policy. Content
varies each offering, but may include regulatory innovations, management of public lands,
urban growth management, and landscape protection. Term paper and class presentations
required. Half for one course for undergraduates. 1 to 3 units for graduate students. Instructor:
Staff. Variable credit.

285. Land Use Principles and Policy. SS
Consideration of four major roles of land in the
United States: as a producer of commodities, financial asset, component of environmental
systems, and location of development. Analysis of market allocation of land, market failure,

287L. Geospatial Analysis for Water Resources Management. Spatial analysis and
image processing applications to support water resources management: water quality,
flooding, and water supply primarily at watershed scale. Topics include water resources data
modeling, terrain modeling and processing, river and watershed network analysis, and
geospatial modeling of hydrologic processes. Knowledge of geospatial analysis theory and
analysis tools required. Prerequisite: Environment 259. Consent of instructor required.
Instructor: Staff.

292L. Biological Oceanography. Physical, chemical, and biological processes of the
oceans, emphasizing special adaptations for life in the sea and factors controlling
distribution and abundance of organisms. Only open to undergraduates under Biology 114L.
Four units (spring); six units (summer). (Given at Beaufort and Bermuda.) Prerequisite:
introductory biology. Instructors: Staff (Beaufort); Lomas (Bermuda). Variable credit. C-L:
Marine Sciences

296. Environmental Conflict Resolution. Practical techniques and scholarly
underpinnings of environmental conflict resolution, including interest-based negotiation,
mediation, public disputes, science-intensive disputes, and negotiation analysis. In-class
time will be spent conducting negotiation role plays of increasing complexity and then
debriefing them. Outside of class, students will prepare for the role plays and read
background material to aid in debriefing. Students will keep a journal of their experiences.
Instructor: Maguire.

298. Special Topics. Content to be determined each semester. May be repeated. Instructor:
Staff. Variable credit. C-L: Marine Sciences

THE MAJOR

The Bachelor of Arts degree in Environmental Sciences and Policy and the Bachelor
of Science degree in Environmental Sciences are offered within the Environmental
For the A.B. Degree

Corequisites. The following courses or their equivalents (for example, Advanced Placement credit) are required. Approval to substitute courses taken at other universities must be obtained from the director of undergraduate studies in the department offering the course. Some of these courses are prerequisite to some upper-level courses in this major.

- Environment 25. Introduction to Environmental Sciences and Policy
- Biology 25L. Principles of Biology
- Biology 26AL or 26BL. Diversity of Life, or 140. Plant Diversity, or 176. Marine Invertebrate Zoology
- Chemistry 21L and 22L, or 23L. Advanced General Chemistry
- Economics 51D or equivalent. Economic Principles
- Earth and Ocean Sciences 11. The Dynamic Earth, or Earth and Ocean Sciences 12. The Dynamic Oceans (C-L: Biology 53)
- Mathematics 31L and 32L, or equivalent. Introductory Calculus

Major Requirements.

1. Intermediate Core Course: Environment 101
2. Environmental Policy. One course from an approved list of environmental policy courses. Approved courses include:
   - Public Policy Studies 107/Political Science 107. Comparative Environmental Policies
   - Environment 149/Public Policy Studies 149. United States Environmental Policy
   - Public Policy 147/Political Science 147. Environmental Politics and Policies in the Developing World
   - Political Science 148/Public Policy Studies 143. Environmental Policies Beyond Borders
   - Public Policy Studies 197/Environment 276. Marine Policy
   - Environment 273. Marine Fisheries Policy
3. Probability and Statistics. One course from an approved list dealing with statistical inference and probability theory. Approved courses include:
   - Statistics 101. Data analysis and Statistical Inference.
   - Statistics 103. Probability and Statistical Inference.
   - Statistics 112. Introduction to Applied Statistics
   - Economics 139. Introduction to Econometrics
   - Political Science 138. Quantitative Political Analysis
   - Psychology 117/Sociology 133. Statistical Methods
4. Focused Study. Five upper-level courses proposed by students in consultation with their advisors to fit a particular theme or career objective. At least two of these courses must be selected from approved lists in each of the social sciences/humanities and sciences/engineering areas, available at http://www.env.duke.edu/programs/undergrad/ab-es-reqs.html. One course must be either an upper-level seminar, a senior capstone course, or a 200-level course. Students will submit to their advisor, usually at the beginning of their junior year, a written rationale for the courses selected, including the title of their focus study theme.
5. Independent Study/Internship/Field Experience. Students complete an approved independent study, internship, or field experience which may or may not include course credit toward upper-level requirements. A letter must be submitted to the director of undergraduate studies from the faculty member, advisor, or supervisor verifying completion of the requirement.

Focused Study in Marine Science and Policy

An exciting area in environmental science and policy is the study of the oceanic realm, including the ecology of marine animals and plants, the dynamics of marine ecosystems, marine policy and management, and environmental monitoring. Majors in environmental
science and policy may fulfill much of their focused study requirement with courses in marine science and policy by studying at the Duke Marine Laboratory on the coast in Beaufort, NC, which often includes fieldwork excursions to other areas of the world (e.g., Hawaii, Trinidad, Singapore). Popular courses include: Marine Mammals; Marine Ecology; Marine Policy; Biology and Conservation of Sea Turtles; Urban Tropical Ecology (see full course listings at: www.nicholas.duke.edu/marinelab/programs). Students typically also perform a research Independent Study project on a topic of interest supervised by a faculty member of the Marine Laboratory.

For the B.S. Degree

Corequisites: The following courses or their equivalents (for example, Advanced Placement credit) are required. Approval to substitute course taken at other universities must be obtained from the director of undergraduate studies in the department offering the course. Some of these courses are prerequisites to upper-level courses in this major.

- Biology 25L. Principles of Biology
- Chemistry 21L and 22L, or 23L. Advanced General Chemistry
- Physics 41L and 42L; or Physics 51L and 52L; or Physics 53L and 54L (Chemistry 151L may be substituted for the second semester of Physics)
- Mathematics 31L and 32L, or equivalent. Introductory Calculus
- Environment 25. Introduction to Environmental Sciences and Policy, or Earth and Ocean Sciences 11. The Dynamic Earth, or Earth and Ocean Sciences 12. The Dynamic Oceans (C-L: Biology 53)

Major Requirements

1. Five Core Courses selected from the following six courses or course lists:
   A. The Fluid Earth (Earth and Ocean Sciences 102)
   B. Environmental Chemistry and Toxicology (Environment 160)
   C. History of the Earth (Earth and Ocean Sciences 107L)
   D. Hydrogeology (Earth and Ocean Sciences 123)
   E. One course from an approved list of ecology courses. Approved course list includes:
      - Environment/Biology 110. Ecology
      - Biology 116. Ecology and Evolution
      - Biology 129L/Environment 139L. Marine Ecology
      - Biology 114L/Environment 114L. Biological Oceanography
      - Biology 123/Environment 123. Analysis of Ocean Ecosystems
   F. One course from an approved list of courses that focus on the interface between humans and the environment. Approved course list includes:
      - Environment 101. Introduction to Environmental Sciences and Policy
      - Environment 103. Conserving the Variety of Life on Earth
      - Environment 149/Public Policy Studies 149. United States Environmental Policy
      - Biology 109. Conservation Biology and Policy (Beaufort)
      - Environment 185. Senior Capstone Course
      - Economics 163. Economics of the Environment.
      - Philosophy 115. Applied Environmental Ethics

2. Probability and Statistics (Statistics 101, 102, 103, or equivalent)

3. Focused Study. Three upper-level natural science, engineering or mathematics courses proposed by the student in consultation with their advisor to form a concentration area. Student will submit to their advisor, usually at the beginning of their junior year, a written rationale for the courses selected, including the title of their focus study theme.

Focused Study in Marine Science

An exciting area in environmental science is the study of the oceanic realm, including the ecology of marine animals and plants, the dynamics of marine ecosystems, marinetoxicology and environmental monitoring. Majors in environmental science and may
fulfill their focused study requirement with courses in marine science by studying at the Duke Marine Laboratory on the coast in Beaufort, NC, which often includes fieldwork excursions to other areas of the world (e.g., Hawaii, Trinidad, Singapore). Popular courses include: Marine Mammals; Marine Ecology; Biological Oceanography; Analysis of Ocean Ecosystems; Biology and Conservation of Sea Turtles; Urban Tropical Ecology (see full course listings at: www.nicholas.duke.edu/marinelab/programs). Students typically also perform a research Independent Study project on a topic of interest supervised by a faculty member of the Marine Laboratory.

THE MINOR

**Environmental Sciences and Policy**

Requirements: Five courses: two core courses (Environment 25 and Environment 101); the remaining three courses selected from 100-level or above Environment courses, which may include one substitution of a course in another department.

**Graduation with Distinction**

The Environmental Sciences and Policy and Environmental Sciences both offer a Graduation with Distinction option. Interested students with a 3.0 grade point average overall and 3.2 grade point average in the Environmental Sciences/Policy major should apply by the beginning of their senior year. The application should include a written request to the director of undergraduate studies describing the proposed research project, and identifying a faculty evaluation committee, consisting of a primary faculty advisor who has agreed to supervise the research, and two additional faculty members. Participants write a substantial paper describing their completed research, which is evaluated by the faculty committee. For additional information and an application form, contact the director of undergraduate programs or visit www.nicholas.duke.edu/people/students/undergrad/distinction.html.

**Note:** Students may not use more than six professional school course credits toward the Bachelor of Arts or Bachelor of Science degree. This six-course restriction applies to all courses offered through the Business School, the Divinity School, the Law School, the Medical School, the Pratt School of Engineering, and any Environment courses at or above the 200 level in the Nicholas School of the Environment and Earth Sciences.

**Study of Ethics (ETHICS)**

Research Professor Euben and Professor Wong, *Co-Directors*

A certificate, but not a major, is available in this program.

The goal of the undergraduate certificate in the Study of Ethics is to provide students with an opportunity to pursue a rigorous cross-disciplinary study of ethics. Such a course of study requires familiarity with systematic ethical theories and traditions of moral wisdom and reflection such as those found within the disciplines of philosophy and theology, as well as a sense of how ethical issues have been framed across history and cultures, and how ethical challenges are being conceptualized and negotiated in practice by policy-makers, researchers, doctors, journalists and others. But ethics cannot be isolated within one or two disciplines. It is an inherently cross-disciplinary inquiry that needs to draw on tools, methods, and contexts from multiple disciplines. That is why certificate students are required to take one course each in philosophical ethics, practical ethics, religious ethics, and ethics in historical and cultural context in addition to the introductory course and the capstone research seminar. The additional two EI (Ethical Inquiry) courses required provide an opportunity for students to concentrate in one of these areas). Since a serious student of ethics needs to be part of a community of concern and inquiry, to create and sustain such a community the program includes intellectual/social occasions for each cohort, providing supplementary advising, special opportunities to meet as a group with the Kenan lecturer and where feasible with visitors sponsored by the Kenan Institute, having them share intellectual occasions with members of the Kenan Graduate Colloquium and other co-curricular activities.

*Study of Ethics (ETHICS)* 293
Eight courses are required for completion of the certificate program:
- Ethics 100D. The Challenges of Living an Ethical Life (introductory course)
- One course in Philosophical Ethics from the list below of approved courses
- One course in Practical Ethics from the list below of approved courses
- One course in Religious Ethics from the list below of approved courses
- One course in Ethics in Historical and Cultural Context from the list below of approved courses
- Two additional courses with an EI (Ethical Inquiry) designation (approval required)
- Capstone Research Seminar in Ethics.

**INTRODUCTORY ETHICS COURSE**

**100D. The Challenges of Living an Ethical Life. CZ, EI** Familiar but fundamental ethical questions: What is a good, worthy or just life? How is it to be lived, toward what ends? Readings include dramas and philosophical analyses, parables and autobiographies, polemics and meditations, novels and political commentaries. Introductory course for the Certificate Program in the Study of Ethics. Instructor: Euben. One course. C-L: Political Science 107D

**PHILOSOPHICAL ETHICS**

Students must take one course from the following list that provides an overview of systematic approaches to moral philosophy.

**Regularly Scheduled Courses**

**Philosophy**
- 107. Political and Social Philosophy
- 117. Ancient and Modern Ethical Theory

**Political Science**
- 123. Introduction to Political Philosophy

**Special Topics Courses Offered Periodically**

**Philosophy**
- 116. Systematic Ethics

**PRACTICAL ETHICS**

Students must choose a course from the following list either for its relevance to applied ethics in the professions or to contemporary public policy issues.

**Regularly Scheduled Courses**

**Education**
- 112S. Children, Schools and Society

**Engineering**
- 108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks

**Human Development**
- 180. Psychosocial Aspects of Human Development

**Philosophy**
- 106. Philosophy of Law
- 115. Applied and Environmental Ethics
- 118. Philosophical Issues in Medical Ethics
- 162. Human Rights in Theory and Practice

**Political Science**
- 147D. Environmental Politics and Policies in the Developing World
- 162. Human Rights in Theory and Practice
- 175B. Distributive Justice
- 186. Civilians in Path of War
- 188. Comparative Health Care Systems
Psychology and Neuroscience
130. Psychosocial Aspects of Human Development

Public Policy Studies
109S. Children, Schools and Society
116. Policy Choice as Value Conflict
126. Information, Policy, and Ethics
136. Civic Participation and Community Leadership
144S. Enterprising Leadership
145. Leadership, Policy, and Change
147D. Environmental Politics and Policies in the Developing World
162. Human Rights in Theory and Practice
175. Distributive Justice
178. Comparative Health Care Systems

Sociology
169. Psychosocial Aspects of Human Development
171. Comparative Health Care Systems

Special topics Courses Offered Periodically

African and African American Studies
299. Economics of Reparations

Economics
295. Economics of Reparations

Public Policy Studies
264. Ethics and International Relations
264. Responsible Genomics
264. Human Rights
264. Economics of Reparations

Political Science
200S. Ethics and International Relations

Theater Studies
129S. Ethical Stages

RELIGIOUS ETHICS

Students must take one course from the following list that familiarizes them with the religious foundations of ethical thought, so that they learn how ethical questions are addressed within religious traditions and the ways in which the relationship between the human and sacred frame ethical inquiry judgment and practices.

History
156A. The Reformation of the Sixteenth Century

International Comparative Studies
120A. Taoism and Chinese Religion
141C. Jewish Mysticism
141E. Islamic Mysticism: Perso-Indian (Eastern) Traditions
181H. The Reformation of the Sixteenth Century

Jewish Studies
100. The Old Testament/Hebrew Bible
106. Jewish Mysticism

Medieval and Renaissance Studies
134C. Jewish Mysticism
156A. The Reformation of the Sixteenth Century

Religion
100. The Old Testament/Hebrew Bible
107A. Taoism and Chinese Religion
115BS. Buddhist Ethics
124. Religion in American Life
128. Christians in Crisis
134. Jewish Mysticism
Students must take one course from the following list that explores how ethical ideas, visions, and practices change over time and across cultures; how historical crises have been a consequence or cause symptom or substance of crises in ethical life and thought.

Regularly Scheduled Courses

**African and African American Studies**
- 113B. Europe's Colonial Encounter, 1492-1992
- 163. The Civil Rights Movement

**Art History**
- 168. Experimental Art and Its Ethics since 1945

**Cultural Anthropology**
- 147. Introduction to Islamic Civilization
- 148. Introduction to Islamic Civilization

**English**
- 149. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924 (DS3)
- 157. The Devil's Pact: Faust and the Faust Tradition

**German**
- 87FCS. Literary Imaginings of the Good Life
- 170. The Devil's Pact: Faust and the Faust Tradition
- 185. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924

**History**
- 101G. Introduction to Islamic Civilization
- 102G. Introduction to Islamic Civilization
- 113B. Europe's Colonial Encounter, 1492-1992
- 134C. Jewish History, 1780's to the Present
- 163E. The Civil Rights Movement
- 188A. Genocide in the Twentieth Century
- 196S. Junior-Senior Seminars in Special Topics
- 228S. Twentieth Century Social Movements in America

**International Comparative Studies**
- 101A. Experimental Art and Its Ethics since 1945
- 141A. Introduction to Islamic Civilization

**Jewish Studies**
- 147. Jewish History, 1780's to the Present

**Literature**
- 133B. Experimental Art and Its Ethics since 1945
- 163F. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924
- 163G. The Devil's Pact: Faust and the Faust Tradition

**Medieval and Renaissance Studies**
- 146A. Introduction to Islamic Civilization
- 147A. Introduction to Islamic Civilization

**Philosophy**
- 163. Chinese Philosophy

**Religion**
- 146. Introduction to Islamic Civilization
- 147. Introduction to Islamic Civilization

**Sociology**
- 141. Consuming Passions

**Women's Studies**
- 168. Experimental Art and Its Ethics since 1945

Special Topics Courses Offered Periodically

**History**
- 196S. Political Violence and the Ethics of Liberty
Film/Video/Digital (FVD)

Professor Paletz, Director

A certificate, but not a major, is available in this program

The Film/Video/Digital Program provides students with the opportunity to study, analyze and produce film, photography, television and digital media. Courses are taught in both FVD studies and FVD production. Students may concentrate in one of these areas, or take courses in both.

FILM/VIDEO/DIGITAL STUDIES

Students develop critical understanding of the history, theory and art form of motion picture and new media technologies. Courses offered in Film/Video/Digital studies include introduction to film, documentary film, film history, national cinemas, and new media. Course credit is also available for internships.

FILM/VIDEO/DIGITAL PRODUCTION

Students gain expertise in a wide range of technologies, from analog film production and cell animation to digital new media production, motion graphics and 3-D animation. Courses offered in Film/Video/Digital production include narrative, animation, documentary and experimental filmmaking. Course credit is also available for internships and individual projects.

CERTIFICATE REQUIREMENTS

There are two categories of courses required for the certificate: Film/Video/Digital courses and related courses offered through other departments, taught by faculty members in various disciplines. Students must take at least six courses, which must include Introduction to Film (Film/Video/Digital 101, crosslisted with Literature 110, Theater Studies 171, English 101A) and the Capstone Course (Film/Video/Digital 170S), plus four other Film/Video/Digital or related courses. For the certificate, students may take no more than three courses originating in a single department or program, other than those originating in the Film/Video/Digital Program.

For a major that includes a film studies track, see the Literature Program.

DUKE IN LOS ANGELES PROGRAM IN MEDIA ARTS AND INDUSTRIES

This is a Los Angeles-based, four course, interdisciplinary program in which students work with, and study, the Hollywood entertainment industries, experience the diverse cultures of Southern California and attend one of the premier film programs in the United States at the University of Southern California. Participants take two and a half Duke courses: A seminar on the United States culture industries (Film/Video/Digital 121S), an internship for credit (Film/Video/Digital 123), and a half credit course taken in preparation for an end of semester conference (Film/Video/Digital 124S). The remainder of their course work is composed of USC classes offered by the School of Cinematic Arts, the Annenberg School for Communication or the Thornton School of Music, or if needed, the department of the student’s major. This program is usually offered in the Spring semester. Information is available from the Duke in Los Angeles Program Coordinator at telephone (919) 660-3030 or e-mail f-v-d@duke.edu, and on the Film/Video/Digital Web site at: http://fvd.aas.duke.edu/dula/.

SCREEN SOCIETY

Film/Video/Digital organizes and coordinates Screen/Society, an academically integrated program of public film and video screenings, sometimes accompanied by lectures, discussions, or filmmaker visits. Screen Society's mission is to advance the
academic study of moving image culture at Duke by collaborating with schools, departments and programs throughout the University to relate film, video, and digital art to other disciplines, and to provide a venue for works from around the world.

**FILM/VIDEO/DIGITAL STUDIES COURSES (FVD)**

**49S. First-Year Seminar. ALP** Topics vary each semester offered. Instructor: Staff. One course.

**100. Duke-Administered Study Abroad: Special Topics in Film and Video.** Topics differ by section. Instructor: Staff. One course.

**101. Introduction to Film (DS4). ALP** One course. C-L: see Literature 110; also C-L: Theater Studies 171, English 101A, Visual Studies 121A, Policy Journalism and Media Studies

**102. Introduction to Documentary Film. ALP, CCI** Introduction to the history, theory, and styles of nonfiction film and video. Transformation in technologies and their influence on form, from actuality films to contemporary digital documentaries. Documentary's marginal status and surprising commercial appeal; the mixing of fiction and nonfiction strategies in cultural construction. Use of documentary as a tool for exploring individual identity, filmmaker/subject relationships, and fomenting political change. Instructor: Staff. One course. C-L: Art History 122, Literature 120E, Documentary Studies 107, Visual Studies 117C

**103. Contemporary Documentary Film: Filmmakers and the Full Frame Documentary Film Festival. ALP, CCI, STS** Integrated with the films and filmmakers of the Full Frame Documentary Film Festival. The art form, style, and technology of contemporary documentary films. Issues of autonomy and power, politics, and public policies. Analysis of outstanding films from around the world. Presentations and discussions by filmmakers. Not open to students who have taken this course as FVD 129. Instructor: Paletz and Rankin. One course. C-L: Documentary Studies 129, Political Science 156A, Public Policy Studies 171

**104. Film Theory. ALP, STS** One course. C-L: see Literature 114; also C-L: Visual Studies 121G, Women's Studies

**105. Studies in Film History (DS4). ALP** One course. C-L: see English 185; also C-L: Theater Studies 172, Literature 116, Visual Studies 115A

**106. Film Genres. ALP** A historical survey of motion picture genre as a stylistic and narrative device, including comedy, horror, the musical, the western, and science fiction. Instructor: Staff. One course. C-L: Literature 120F, English 186B, Art History 136, Visual Studies 117F


**109. Political Economy of the Global Image. CCI, EI, SS, STS** One course. C-L: see Literature 117; also C-L: English 184

**110. Film and Politics. ALP, EI, R, SS** One course. C-L: see Political Science 156B

**111A. Modern Chinese Cinema. ALP, CCI, CZ** One course. C-L: see Asian and African Languages and Literature 188; also C-L: Literature 112J, Visual Studies 105G

**111B. French Cinema. ALP, CCI, FL** One course. C-L: see French 155; also C-L: International Comparative Studies 181E, Visual Studies 126E
111C. German Film. ALP, FL One course. C-L: see German 141S; also C-L: Visual Studies 118BS

111D. Indian Cinema. ALP, CCI, CZ, R One course. C-L: see Asian and African Languages and Literature 170; also C-L: Literature 112E, Visual Studies 105B

111E. Italian Cinema. ALP, CCI One course. C-L: see Italian 132; also C-L: Literature 112K, Visual Studies 126A, Theater Studies 172A

111F. Japanese Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 171; also C-L: Literature 112H, Visual Studies 105C

111G. Korean Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 175; also C-L: Literature 112G, Visual Studies 105F

111H. Contemporary Israeli Cinema. ALP, CCI, EI One course. C-L: see Asian and African Languages and Literature 161; also C-L: Literature 112M, Jewish Studies 140, Cultural Anthropology 161, Women's Studies 151

112. Movies of the World/The World of Movies. ALP, CCI, STS One course. C-L: see Literature 113; also C-L: English 122, German 156, Russian 113

113. States of Exile and Accented Cinemas. ALP, CCI, EI, SS One course. C-L: see Literature 113AS; also C-L: Latin American Studies, Islamic Studies

114. Performance Traditions of the Middle East. ALP, CCI One course. C-L: see Literature 118; also C-L: Theater Studies 129B, Islamic Studies

115S. Sexualities in Film and Video. ALP One course. C-L: see Literature 115S; also C-L: English 124S, Visual Studies 121CS, Study of Sexualities

116S. Transforming Fiction for Stage and Screen. ALP, W One course. C-L: see Theater Studies 138S; also C-L: English 108BS

117. World War II and French Film. CCI, CZ, EI, FL One course. C-L: see French 156; also C-L: History 153C, Visual Studies 126F

120. Special Topics in Film Studies. Special Topics in Film Studies. Instructor: Staff. One course.

120S. Special Topics in Film Studies. Seminar version of Film/Video/Digital 120. Instructor: Staff. One course.

121S. Special Topics in the United States Culture Industries. ALP, R, W One course. C-L: see Literature 197S; also C-L: English 196S

122. Internship. Students arrange academic work in conjunction with approved internship in the entertainment industry. Academic work must be with Film/Video/Digital faculty and include the university minimum (one research paper) as well as reading from bibliography approved by professor and/or viewing list worked out in advance. Consent of instructor required. Instructor: Staff. One course.

123. Media Internship in Los Angeles. Immersion in the for-profit and not-for-profit art and entertainment worlds through apprenticeship to a sponsoring artist, scholar, or institution selected to match each student's area of interest. Each student required to submit a substantive paper containing significant analysis and interpretation that considers the relationship between the student's sponsoring institution and the larger industrial/cultural complex within the local (Los Angeles) and national economies of art, culture, and commerce. Simultaneous enrollment in Literature 197S required. Open only to students admitted to the Duke in Los Angeles Program. Instructor: Staff. One course.

124S. Writing the Hollywood Cyber Journal. ALP Seven week research and development of the web publication of a class journal on modern Hollywood practices/industries, public policy issues, and controversies confronting these industries including the culture wars, media violence, intellectual properties, and new technologies. Culminates with presentations in a class-planned conference interacting with industry professional
respondents. Must be enrolled in the Duke in Los Angeles Program. Instructor: Thompson.
Half course. C-L: Literature 198S, Information Science and Information Studies 124S

FILM/VIDEO/DIGITAL PRODUCTION COURSES

130S. Introduction to Production. ALP, STS Film and digital video production in conjunction with the history and theory of these technologies. Students may produce work in 8mm, 16mm film and digital video and learn the basics of non-linear digital editing on Final Cut Pro. Not open to students who have taken this course as FVD 100S. Instructor: Staff. One course. C-L: Theater Studies 173S, English 183S, Visual Studies 117AS, Information Science and Information Studies

131S. Screenwriting. ALP, W One course. C-L: see Theater Studies 137S; also C-L: English 102S

132S. From Stories to Movies. ALP, W One course. C-L: see Theater Studies 141S

133S. Adapting Literature -- Producing Film. ALP Collaborative exploration of the process of adapting literature for production of documentary and or dramatic film projects. Generally linked to the production of a PBS or independent documentary film or the production of a short dramatic film. Students gain an understanding of the interdisciplinary aspects of filmmaking. Instructor: James. One course. C-L: Documentary Studies 133S, Visual Arts 138S, Information Science and Information Studies

134S. Acting For the Camera. ALP One course. C-L: see Theater Studies 153S

135S. Film Animation Production. ALP Experimentation with various media; mastering animation techniques such as metamorphosis, timing, articulation, storytelling, sound design, special effects, and camera. Each student to produce a one-minute animated film on the Oxberry 16mm film animation stand. Not open to students who have taken this course as FVD 102S. Instructor: Burns. One course. C-L: Visual Arts 165S, Visual Studies 117IS, Information Science and Information Studies

136S. Motion Graphics in Film and Video. ALP, STS An advanced post-production course designed to explore the history, theory, and practice of motion graphics techniques in film and video. Students produce digital motion sequences out of still images and create multiple motion paths through exposure to applications such as Adobe After Effects, Final Cut Pro, iMovie. Not open to students who have taken this course as FVD 109S. Consent of instructor required. Instructor: Staff. One course. C-L: Visual Studies 117JS

137. Virtual Form and Space. One course. C-L: see Visual Studies 192; also C-L: Information Science and Information Studies 108

138S. Documentary Film/Video Theory and Practice. ALP The politics and aesthetics of realism. History of styles from Griersonian "propaganda" to cinema verite and "reality TV." Practical exercises in location sound, camera to subject relationship, and camera movement. Prerequisite: English 101A, Literature 110, Literature 111S, or Theater Studies 171. Not open to students who have taken this course as FVD 104S. Instructor consent required. Instructor: Staff. One course. C-L: Cultural Anthropology 131S, English 101CS, Visual Studies 117KS, Documentary Studies


140S. Planning the Documentary Film: From Concept to Treatment. ALP, R One course. C-L: see Documentary Studies 148S; also C-L: Visual Studies 103US, Information Science and Information Studies

141S. Editing the TV Documentary: From Creativity to Collaboration to Negotiation. ALP "Behind the scenes" look at editing a long form documentary for broadcast television. Discussions, readings and hands-on editing exercises introducing students to the language of editing and the tricky negotiations often needed to bring a film to dissemination. Instructor: Cutler. One course. C-L: Documentary Studies 141S, Visual Studies 117LS
142S. Experimental Filmmaking. ALP The history of avant-garde in film and video combined with production exercises. Instructor: Staff. One course. C-L: Visual Arts 146S, English 186ES

143S. Sound for Film and Video. ALP, STS Topics focusing on technical basis and aesthetic motivation of sound recording and sound exploitation. Technical demonstration and student exercises explore the mechanics and dramatic and psychological implications of formats, microphone placement, mixing, acoustic signature, digital recording, double system, and sound editing, leading to an individually produced sound design for live action or animation film/video. Not open to students who have taken this course as FVD 103S. Instructor: Staff. One course. C-L: Visual Arts 146S, English 186ES

143S. Sound for Film and Video. ALP, STS Topics focusing on technical basis and aesthetic motivation of sound recording and sound exploitation. Technical demonstration and student exercises explore the mechanics and dramatic and psychological implications of formats, microphone placement, mixing, acoustic signature, digital recording, double system, and sound editing, leading to an individually produced sound design for live action or animation film/video. Not open to students who have taken this course as FVD 103S. Instructor: Staff. One course. C-L: Visual Arts 146S, English 186ES

143S. Sound for Film and Video. ALP, STS Topics focusing on technical basis and aesthetic motivation of sound recording and sound exploitation. Technical demonstration and student exercises explore the mechanics and dramatic and psychological implications of formats, microphone placement, mixing, acoustic signature, digital recording, double system, and sound editing, leading to an individually produced sound design for live action or animation film/video. Not open to students who have taken this course as FVD 103S. Instructor: Staff. One course. C-L: Visual Arts 146S, English 186ES


151S. Intermediate Animation. ALP Concentration on selected media primarily two-dimensional but including three dimensional forms. Animation camera including camera effects, motion analysis, and effects animation. American studio styles compared to independent artist animators. Instructor: Burns. One course. C-L: Visual Arts 166S

152S. Intermediate Documentary Filmmaking. Intermediate to advanced filmmaking techniques. Presumes a working knowledge of Final Cut Pro, mini-DV camera, and some fieldwork experience with a camcorder. Topics include fieldwork in a variety of communities and work on pertinent social and cultural issues. Not open to students who have taken this course as FVD 116S. Prerequisite: Documentary Studies 105S or equivalent experience and knowledge. Consent of instructor required. Instructor: Staff. One course. C-L: Documentary Studies 150S, Public Policy Studies 182S, Visual Studies 103VS, Information Science and Information Studies

160S. Special Topics in Film and Digital Video Production. ALP, STS An in-depth investigation of a particular production technology combined with an emphasis on an aesthetic or theoretical strategy. Exploration of lighting, cinematography, directing for camera, and/or nonlinear post-production techniques. Instructor: Staff. One course. C-L: Information Science and Information Studies

162S. Visiting Filmmaker Master Courses: Special Topics. ALP Intensive production courses with visiting filmmaker. Topics vary by semester. May be taken twice. Instructor: Staff. One course.

163T. Tutorial. ALP Instructor: Staff. One course.

164. Individual Project. Independent work open to highly qualified juniors and seniors on recommendation of instructor and/or invitation of department. Instructor: Staff. One course.

165. Internship. Students may arrange academic work in conjunction with approved internship in the entertainment industry. Academic work must be with core faculty and include the university minimum (one research paper) as well as reading from bibliography approved by professor and/or viewing list worked out in advance. Prerequisite: English 101A, Film/Video/Digital 130, Literature 110, or Theater Studies 173. Instructor: Staff. One course.

170S. Capstone Course: Program in Film/Video/Digital. ALP, STS Culminating seminar for Film/Video/Digital Program certificate students. Designed to allow students to complete their certificate with a finished project or advanced research in the field. Not open to students who have taken this course as FVD 115S. Instructor: Staff. One course. C-L: Literature 110BS
RELATED COURSES OFFERED REGULARLY

African and African American Studies
101. Film and the African Diaspora

Art History
199. History of Photography, 1839 to the Present
250S. Critical Studies in New Media

Cultural Anthropology
104. Anthropology and Film
104D. Anthropology and Film
110. Advertising and Society: Global Perspective
116S. Advertising and Masculinity

Documentary Studies
176S. American Communities: A Photographic Approach
177S. Advanced Documentary Photography

English
101B. Introduction to Cultural Studies
107S. Dramatic Writing
108AS. Advanced Dramatic Writing
118. Art and Dissidence: The Films of Tarkovsky, Kubrick, Kurosawa, and Lynch
120. Advertising and Society: Global Perspective
189S. Special Topics in Film
284. Contemporary Film Theory

French
156. World War II and French Film

History
150E. Russian Revolutionary Cinema
153C. World War II and French Film

Information Science and Information Studies
92FCS. How They Got Game: History and Culture of Interactive Simulations and Video Games
140. Fundamentals of Web-Based Multimedia Communications
250S. Critical Studies in New Media

International Comparative Studies
101C. Anthropology and Film
281ES. Cinema and Literature in Italy

Italian
225S. Cinema and Literature in Italy

Literature
100. Introduction to Cultural Studies
112S. Special Topics in National Cinema
120AS. Special Topics in Television Genres
120BS. Special Topics in Film
141. International Popular Culture
143. Problems in Global Culture
143S. Problems in Global Culture
210S. Basic Concepts in Cinema Studies
212S. Film Feminisms
261S. Critical Studies in New Media

Music
169. Hollywood Film Music

Political Science
203S. Politics and Media in the United States

Public Policy Studies
120S. News Writing and Reporting
163S. Telecommunications Policy and Regulation
176S. American Communities: A Photographic Approach
177S. Advanced Documentary Photography
Religion
184. Religion and Film

Russian
135A. Contemporary Russian Media
150. Russian Revolutionary Cinema
163. Art and Dissidence: The Films of Tarkovsky, Kubrick, Kurosawa, and Lynch

Sociology
160. Advertising and Society: Global Perspective
160D. Advertising and Society: Global Perspective
170. Mass Media

Theater Studies
135S. Dramatic Writing
136S. Advanced Dramatic Writing
155S. Directing

Visual Arts
116S. Photography
118S. American Communities: A Photographic Approach
119S. Advanced Documentary Photography
125S. Intermediate Digital Photography

Visual Studies
100D. Introduction To Visual Culture
101G. History of Photography, 1839 to the Present
103XS. American Communities: A Photographic Approach
103YS. Advanced Documentary Photography
104A. Film and the African Diaspora
110A. Anthropology and Film
110E. Advertising and Society: Global Perspective
110FS. Advertising and Masculinity
121E. Introduction to Cultural Studies
121F. International Popular Culture
125ES. News Writing and Reporting
126F. World War II and French Film
127E. Contemporary Russian Media
127G. Art and Dissidence: The Films of Tarkovsky, Kubrick, Kurosawa, and Lynch
250AS. Critical Studies in New Media

Women's Studies
212S. Film Feminisms

SPECIAL TOPICS COURSES OFFERED PERIODICALLY

History
104. Latin America through Film

Literature

Portuguese
200S. Seminar in Portuguese Literature: Literatura e Cinema Os Classicos Brasilieros

Public Policy Studies
195S. Selected Public Policy Topics: Community Service and the Documentary Tradition
195S. Selected Public Policy Topics: Entertainment Industry: Policy and Practice
195S. Selected Public Policy Topics: Communications Frontier Technology: Media and Democracy
264. Advanced Topics: Media and Democracy

Spanish
142S. Cines del Caribe
169. Topics in Nineteenth- and Twentieth-Century Spanish Literature: Spanish Cinema

Theater Studies
139S. Special Topics in Dramatic Writing: Advanced Screenwriting
Focus Program (FOCUS)

The Focus Program offers first-year and second-year students a variety of interdisciplinary course clusters in the fall and spring semesters; each cluster is centered on a common theme.

**99FCS. Special Topics in Focus.** Forum for discussing and bridging the varied interdisciplinary issues that arise within the individual Focus Program seminars. May include group discussion, readings, guest lectures, film viewings, and other educational activities. Open only to participants in the Focus Program. Pass/Fail grading only. Instructor: Staff. Half course.

French

For courses in French, see Romance Studies.

Genetics

See the listings for the University Program in Genetics and Genomics in the Medicine section, and the information in the Biology section about the Biology Major and Minor with a concentration in Genetics.

**Genome Sciences and Policy (GENOME)**

Professor Willard, *Director*

A certificate, but not a major, is available in this program.

The Genome Sciences and Policy Certificate Program provides a coherent course of study within the comprehensive scope of the genome sciences and their impact on society. This integrated and interdisciplinary curriculum will enable students from a broad range of disciplines to acquire and apply knowledge and understanding of the Genome Revolution and its continual and growing impact on their distinct fields. Highlighting the different perceptions and approaches taken by various disciplines to the study of genomics, the Genome Sciences and Policy Certificate Program will cultivate the interdisciplinary perspectives necessary to address current and future implications for health, science, and society. The Genome Sciences and Policy Certificate Program will be available to all students at the undergraduate level.

Undergraduate students will be required to complete the following five (5) courses and two research experiences (at least one of which is credit-bearing):

- Genome Sciences and Policy Certificate Program core course (Genome 48/Biology 48/Public Policy 48 or Genome 148 when appropriate);
- Three elective courses from the lists below, with at least one course chosen from the Genome Ethics/Law/Policy elective course list and taking into account that no more than three courses for the certificate may originate in any one department;
- Genome 198S capstone course to be taken in the senior year;
- Two research experiences consisting of either two semester-long independent study courses or one semester-long independent study course plus one approved summer research experience.

No more than two courses that are counted toward this certificate may satisfy the requirements of any major, minor, or other certificate program. Please contact the program director for information regarding modifications to the requirements for students in the Class of 2009.

**48. Genetics, Genomics, and Society: Implications for the 21st Century.** EI, NS, SS, STS One course. C-L: see Biology 48; also C-L: Public Policy Studies 48

**148. Genome Sciences and Society.** EI, NS, SS, STS This course will run in parallel with Genome Sciences and Policy 48. Building from material taught in Biology 118 and/or
Biology 195S, this course will focus on the contemporary study of the human genome particularly in regard to structural and functional genomics and genome variation interwoven with contemporary social and policy issues emanating from the Genome Revolution such as pharmacogenetics, genetic discrimination, genomics of race, genetically modified organisms, and genomic testing. Students will develop a final paper addressing the science and societal impact of a genomics topic. Prerequisites: Biology 118 or Biology 195S, or with consent of instructor. Instructor: Haga, Hill, or Staff. One course.

178S. Special Topics in Social Impacts of Genomics. Topics in social impacts of genomics. Topics will vary. Instructor: Staff. One course.

188S. Special Topics in Genome Sciences. Topics in genome sciences and policy. Instructor: Staff. One course.

198S. Genome Sciences and Policy Capstone. EI, NS, R, SS, STS. Create and apply knowledge gained through certificate course work and research experiences in an intensive, interdisciplinary, small group setting. Students work in small teams learning to analyze current issues in genome sciences and policy and to consider the issue from scientific, social, and ethical perspectives. Teams will present their research as an oral final project. Consent of Director of Genome Sciences and Policy program required. Open only to students in the Genome Sciences and Policy program. Instructor consent required. Instructor: Willard and Staff. One course.

PROGRAM COURSES

Genome Ethics/Law/Policy Elective Courses

**Biology**
174. Philosophy of Biology

**Computational Biology and Bioinformatics**
212. Responsible Genomics

**English**
171ES. The Human Genome in Literature, Film, and the News (DS4)

**Information Science and Information Studies**
270. Body Works: Medicine, Technology, and the Body in Early Twenty-first Century America

**Literature**
262. Body Works: Medicine, Technology, and the Body in Early Twenty-first Century America

**Philosophy**
114. Philosophy of Biology
118. Philosophical Issues in Medical Ethics
270. Body Works: Medicine, Technology, and the Body in Early Twenty-first Century America

**Public Policy Studies**
240. Responsible Genomics

Genome Sciences Elective Courses

**Biology**
187. Evolutionary Genetics and Genomics
270S. Genetics and Evolution of Complex Traits
271. Genomics
278S. Genetic Basis of Behavior
280S. Genetic Engineering and Biotechnology
289S. Advanced Topics in Genome Science Research

**Biomedical Engineering**
258L. Genome Science & Technology Lab (GE, MC)

**Computational Biology and Bioinformatics**
222. Genome Science & Technology Lab (GE, MC)
230. Algorithms in Computational Biology
241. Statistical Genetics

**Computer Science**
4G. Introduction to Computational Genomics and Computer Science
160. Introduction to Computational Genomics
260. Algorithms in Computational Biology

**Psychology and Neuroscience**
215S. Developmental Behavioral Genetics

**Statistics and Decision Sciences**
271. Statistical Genetics

**SPECIAL TOPICS COURSES OFFERED PERIODICALLY**

**Genome Ethics/Law/Policy Elective Courses**

**English**
173. New Media, Literature and Genes

**Philosophy**
291S. Ethics of Biotechnology Policy
291S. Political Philosophy and Public Policy in Genomics

**Public Policy Studies**
81FCS. Social & Political History of Genomics
196S. Science in the Media

**Religion**
89FCS. American Protestantism, Scientific Progress, National Identity

**Genome Sciences Elective Courses**

**Biomedical Engineering**
265. Model and Engineering Gene Circuits

**Biology**
49S. Biotechnology and the New Genetics
195S. Genomics, Biology, and Medicine

**Germanic Languages and Literature (GERMAN)**

Associate Professor Donahue, Chair; Visiting Assistant Professor Mueller, Director of Undergraduate Studies and Director of Language Program; Professor Pfau (English); Associate Professors Donahue, Morton, Rasmussen, and Robisheaux; Assistant Professor Norberg; Professors Emeriti Alt, Phelps, and Rolleston; Assistant Professor Emerita Bessent; Associate Professor of the Practice Walther; Adjunct Assistant Professor Keul; Visiting Assistant Professor Fricker; Lecturer Johns

A major or minor is available in this department.

The department offers courses in German, as well as courses taught in English where no knowledge of German is required (see the section below for Courses Taught in English).

**COURSES TAUGHT IN GERMAN**

1. **First-Year German I. FL** First semester of introductory language course. Practice in spoken and written German (speaking, listening, reading, writing); introduction to German culture and society through poems, songs, films, internet, and other authentic materials. Proficiency oriented, communicative approach to language study. Instructor: Staff. One course.

2. **First-Year German II. FL** Second semester of introductory language course. Practice in spoken and written German, vocabulary building, building cultural awareness. Focus on topics of everyday life in German-speaking countries through stories, poetry, music, video, internet, as well as grounding in basic structures of the German language. Instructor: Mueller and staff. One course.

14. **Intensive First-Year German. FL** Intensive introduction to German language and culture. Combines in one semester the work of German 1-2. Designed for students with some prior knowledge of German. Consent of instructor required. Instructor: Staff. Two courses.

65. **Intermediate German I. CZ, FL** Language proficiency and cultural knowledge through topic-oriented syllabus focusing on contemporary German culture and society. Comprehensive review of German grammar, vocabulary building, practice in speaking,
reading, and writing skills. Literary and nonliterary texts from a variety of media (books, newspapers, audio, video, film, internet), providing basis for discussion and cultural awareness. Extensive reading includes one longer prose text by a contemporary German, Swiss, or Austrian writer. Prerequisite: German 1-2, 14, or equivalent. Instructor: Mueller or staff. One course.

66. Intermediate German II. CZ, FL (See description of German 65 above.) Increased focus on reading, speaking, essay writing. Extensive reading includes one full-length play by a contemporary German, Swiss, or Austrian writer. Prerequisite: German 65, or appropriate placement test score, or consent of instructor. Instructor: Mueller or staff. One course.

67. Intensive Intermediate German. CZ, FL Intensive grammar review and practice of spoken and written German, combining in one semester the work of one year of intermediate German. Taught only in the Berlin Fall Semester Program. Prerequisite: German 1-2, 14, or equivalent. Instructor: Staff. One course.

68. Intensive Intermediate German for Engineers. CZ, FL Development of German language proficiency (reading, listening, speaking, and writing), with focus on the acquisition of specialized vocabulary in the fields of engineering, technology, mathematics, and other natural science disciplines. Includes investigation of history and culture of Berlin, with focus on major political, economic, social, and cultural developments since the fall of the Wall. Materials from various sources (scientific texts and problem sets, print media, audio/video material). Taught at the Technical University in Berlin. Offered only in the January term of the Duke-in-Berlin spring semester program. Prerequisite: German 2, 14, or equivalent. Instructor: Staff. One course.

69. Intensive Intermediate German. CZ, FL Intensive grammar review and further development of reading, listening, speaking, and writing skills through topic-oriented syllabus dealing with contemporary German culture and society. Authentic texts from a variety of media providing the basis for discussion and cultural awareness. Combines in one semester the work of one year of intermediate German (German 65 and 66.) Prerequisite: German 1-2, 14, or equivalent. Instructor: Staff. Two courses.

76. Readings in German Literature. ALP, FL Development of written and oral proficiency in German, as well as the vocabulary and analysis tools needed for poetry and short prose. Intended for intermediate language learners beginning to work with German literature. Prerequisite: German 65 or equivalent. Taught in the Duke Summer in Berlin program. One course.

99. Introduction to German. One course credit for Advanced Placement in German. One course.

100S. Business German. CCI, FL, SS Introduction to the language of commerce and industry; modes of expression for technology and marketing. Particular attention to cultural differences affecting German-American business transactions. Instructor: Fricker. One course.

115S. Advanced German in Berlin. ALP, CCI, CZ, FL Texts drawn from various media centered largely on contemporary Berlin. Development of written and oral proficiency in German, as well as insight into the cultural and historical aspects of the capital. Intensive practice of sentence structure and expository writing. Prerequisite: German 66 or equivalent. May substitute for German 117S or 118S to fulfill major requirement. Taught only in the Duke Summer in Berlin program. Instructor: Staff. One course.

117S. Advanced German I: Culture and Society. CCI, CZ, FL Development of advanced proficiency in oral and written communication. Expansion and deepening of cultural literacy and interpretive skills by focusing on issues of social, cultural, and political significance in German-speaking countries. Cultural and literary texts from a variety of media and genres analyzed in social and cultural contexts. Intensive work on vocabulary, sentence structure, and patterns of expression. Instructor: Staff. One course.
118S. Advanced German II: Text and Context. ALP, CZ, FL, W Development of advanced German language proficiency, with particular attention to written expression. Emphasis on stylistic variation, complex grammatical structures, and lexical sophistication (vocabulary building). Analysis of authentic texts from a variety of genres will provide the basis for practice in creative, descriptive, narrative, argumentative, and analytical writing. Prerequisite: German 117S or equivalent. Instructor: Staff. One course.

119S. Advanced German Language and Culture. ALP, CCI, CZ, FL, W Development of advanced proficiency with particular emphasis on speaking and writing. Through analysis of literary and nonliterary texts, excursions, museums, films, theater performances, students gain in-depth knowledge of various aspects of German culture and society. Advanced grammar review, vocabulary building, oral presentations, as well as a variety of writing assignments. Taught only in the Berlin program. Prerequisite: German 66, 67, 69, or equivalent. Fulfills major requirement for German 117S and German 118S. Instructor: Wohlfeil. Two courses.

121S. Introduction to German Literature. ALP, CCI, FL Principal authors, genres, concepts, and works of German literature: Middle Ages to the Baroque. Instructor: Morton or Rasmussen. One course. C-L: Medieval and Renaissance Studies 111ES

122S. Introduction to German Literature. ALP, CCI, FL Continuation of German 121S: Enlightenment to the present. Instructor: Fricker or Morton. One course.

126S. Masters of the Modern: Great Writers of the 20th Century. ALP, FL, W Studies in four giants of twentieth-century German literature: Rilke, Kafka, Mann, and Hesse. May also include short works by Bertolt Brecht and Nobel prize winners Heinrich Böll and Günter Grass. Defining "world literature" and the shaping of "modern" Western thought by these major literary figures. Readings explore major twentieth-century themes: modernism, totalitarian politics, Eastern spirituality, German identity and the situation of Germany within Europe. Regular written exercises, readings, and discussion in German. Instructor: Donahue, Morton, or Rolleston. One course. C-L: International Comparative Studies

133S. Introduction to German Drama. ALP, CCI, FL The German theater from Lessing to Brecht and beyond, focusing on the relationship between dramatic form and social, historical, and cultural contexts. Topics may include: the Trauerspiel, Sturm und Drang, expressionism, epic theater, documentary drama. Final project may include performance of a play or scenes from different plays. Instructor: Donahue, Morton, or Walther. One course. C-L: Theater Studies 123S, International Comparative Studies

136S. Utopias and Nightmares: Science, Technology, and German Culture. ALP, FL, STS Examines a selection of German films and texts that serve as vehicles for assessing the current state of the world and alternatives to it. Focus on the role of science and technology in shaping those alternatives. Special attention paid to German views of technology that inform its history and cultural production. Introduces methods of textual analysis, film criticism, and the history of science and technology. Develops all German language skills. Science background not required. Instructor: Staff. One course. C-L: Visual Studies 118AS, Information Science and Information Studies

139S. Legacies of the Holocaust in German Culture. ALP, CCI, EI, FL Literary, cinematic, and cultural representations of the Holocaust in German-speaking countries. Core issues of the Holocaust haunting subsequent cultural and national politics and cultural works: fanatical nationalism, racisms, genocide, technological efficiency, extreme and arbitrary suffering, the quality of German resistance, contested postwar interpretations, globalization of Holocaust memories. Instructor: Donahue. One course. C-L: Jewish Studies 160S

141S. German Film. ALP, FL Introduction to innovative German films and important critical texts about film theory and film reception. Emphasis on methods of film analysis and vocabulary. Topics and themes include Myth and Modernity; German Women Filmmakers;
Representations of the Holocaust in German Films; National Identity and German Film. Instructor: Staff. One course. C-L: Film/Video/Digital 111C, Visual Studies 118BS

142S. Freud's Vienna: Experiments in Modernity Around 1900. ALP, CCI, CZ, FL. An interdisciplinary approach to the cultural and political transformations taking place in Vienna around 1900 (art, architecture, literature, psychoanalysis, music). The common contexts and interconnections between writers such as Schnitzler, Hofmannsthal, Musil, and Kraus, Freud's psychoanalysis, Klimt and Schiele's Jugendstil and Expressionist art, the architectural innovations of Wagner, Loos, and the Ringstrasse, and the music of Mahler, R. Strauss, and Schoenberg. Focus on issues such as sexuality, disease, desire, and modernity. The rise of mass politics and modern anti-Semitism. Instructor: Staff. One course. C-L: Visual Studies 118ES

148S. Special Topics in German Literature and Culture. ALP, FL. Focus on aspects of German literature and cultural studies. Topics vary. Instructor: Staff. One course.

151S. Advanced Intensive German. CCI, CZ, FL. For advanced students to increase all four language skills: comprehension, speaking, reading, and writing. Discussion of current events from a German cultural perspective based on newspaper articles, radio and television reports. Preparation for the German language examination required of all foreign students enrolling at German universities. Equivalent of German 117S or 118S, but offered only in the Berlin semester program. Instructor: Staff. One course.

152S. Berlin in Literature and Culture. ALP, CCI, FL. Literary works of modern German writers; focus on the city of Berlin and its unique cultural and political heritage due to Germany's division from 1945 to 1989. Emphasis on art and architecture of Berlin reflecting both historical trends and political ideologies such as National Socialism and Marxism. Taught only in the Berlin semester program. Instructor: Wohlfeil. One course. C-L: International Comparative Studies


155. Advanced German Cultural Studies. CZ, FL. Topics vary. Taught in German and only in the Berlin Semester Program. Prerequisite: P.N.d.S. (successful completion of German Language exam administered by the Free University). Instructor: Staff. One course. C-L: International Comparative Studies

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic and/or artistic product. Open only to qualified juniors and seniors by consent of instructor and director of undergraduate studies. Instructor: Donahue, Morton, Norberg, Rasmussen, or Walther. One course.

192. Research Independent Study. Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors and seniors by consent of instructor and director of undergraduate studies. Instructor: Borchardt, Donahue, Morton, Norberg, Rasmussen, or Walther. One course.

201. German for Academic Research I. Introduction to German for the purpose of developing reading and translation skills necessary for pursuing academic research. Assumes no prior knowledge of German. Foundations of German grammar and syntax; emphasis on vocabulary and translations. Selected readings in theory of translation and techniques. Not open for credit to undergraduate students who have taken Intermediate German (65, 66, 69, or equivalent). Does not count toward the major or minor, or toward the fulfillment of the Foreign Language Requirement. Instructor: Staff. One course.
202. German for Academic Research II. Development and refinement of skills needed to read and translate intermediate to advanced academic German. Texts selected by instructor, with regular opportunities to work on materials related to individual fields/research topics. Selected readings in theory of translation and techniques. Prerequisite: German 201. Not open for credit to undergraduate students who have taken Intermediate German (65, 66, 69, or equivalent). Does not count toward the major or minor, or toward the fulfillment of the Foreign Language Requirement. Instructor: Staff. One course.

204S. German Business / Global Contexts. CCI, FL, SS Current German economic and business debates and events. Germany's position in the global marketplace and on ensuing intercultural business encounters. Topics include state of Germany's industry and energy resources, monetary policies and banking systems, environmental concerns, foreign trade, taxes, and the social safety net. Attention to Germany's self-understanding as a "social market economy" and the compatibility of that model with current trends in globalization. Instructor: Fricker. One course.

209S. Introduction to Medieval German: The Language of the German Middle Ages and Its Literature. ALP, FL, R Basic reading skills in the medieval German language (Middle High German) developed by working with literary texts in their original idiom. Canonical texts such as courtly love poetry (Walther von der Vogelweide), Arthurian romance (Hartmann von Aue, Wolfram), and heroic epic (Nibelungenlied). Understanding manuscript culture, philological inquiry, medieval intellectual practices, relationship between learned Latin culture and educated vernacular cultures. Research paper required. Readings and discussion in German. Instructor: Rasmussen. One course. C-L: Medieval and Renaissance Studies 201S

210S. Sex, Gender, and Love in Medieval German Literature. ALP, CCI, FL Historical contexts for emergence of courtly love and the role of desire and interpretation in Gottfried von Strassburg's Tristan und Isolde, courtly love lyric, 'maere.' Instructor: Rasmussen. One course. C-L: Medieval and Renaissance Studies 203S

216S. The Grand Gesture: German Literature of the Seventeenth Century. ALP, FL, R The poetry of excess, of performance, of the public posture; rhetoric; the prose of the rogue, adventurer, and the Ne'er-do-well; comedy, farce, and the clown in the German literature of the Baroque era. Instructor: Staff. One course.

221S. Literary Guide to Italy. ALP, CCI, CZ One course. C-L: see Italian 221S; also C-L: Literature 280S

225S. Introduction to Goethe. ALP, FL, R Major works of lyric, narrative, drama, and theory, throughout Goethe's career. Readings and discussions in German. Instructor: Morton. One course.

226S. Goethe's Faust. ALP, EI, FL, R Goethe's masterpiece and life's work, conceived as a summation of Western literature and mythology for the modern age. Readings and discussions in German. Instructor: Morton. One course.

245S. German Literature and Culture 1900-1945. ALP, CCI, EI, FL Radical social shifts and their disruption of German culture and literary conventions during the first half of the 20th century. From the poetry, film, manifestos, and revolutionary theater of Expressionism, to the high modernism of Rilke, Kafka, Hesse, and Mann, to the didactic literary program of Brecht and his circle, including Kurt Weil and Marie Louise Fleisser, to the internationalist goals of the Frankfurt School of Social Research. Emphasis on relations between text and history, from WWI to Weimar to the persecutions and systematic destructions of the Nazi era. Instructor: Donahue or Rolleston. One course. C-L: International Comparative Studies

247S. Contested Memories in German Culture since 1945. ALP, FL, R Major German literary, filmic, and cultural works since 1945. Topics vary: representations of National Socialism and the Holocaust in German culture; "Vergangenheitsbewältigung" (dealing with the past) in German literature and culture; history, memory, and national identity in
Germanic Languages and Literature (GERMAN)  311

258S. Special Topics in German Literature and Cultural Studies. ALP, FL Instructor: Staff. One course.

COURSES TAUGHT IN ENGLISH

49S. First-Year Seminar. Topics may vary each semester offered and are described in the First-Year Seminars booklet. Instructor: Staff. One course.

87FCS. Literary Imaginings of the Good Life. ALP, EI, W Seminar on the ways in which literature shapes and is shaped by our quest for social ideals. Open only to students in the Focus Program. Instructor: Rasmussen. One course. C-L: Ethics

88FCS. Berlin in the Twentieth Century. ALP, CCI, CZ, EI Uses literature, film, art, architecture, and history to trace the periods of Berlin's development in the twentieth century (Imperial, Weimar Republic, Nazi, Communist, Berlin Republic) in order to understand both the rich cultural and intellectual heritage and the troubling legacies that mark the new Berlin. Special attention to ethical questions posed by the Holocaust. Provides background for understanding the historical dimensions to recent developments such as Christo's *Wrapped Reichstag*; the Jewish Museum and the debate on the German Holocaust Memorial; the Neue Wache; the Potsdamer Platz; and the film *Run Lola Run*. Taught in English. Open only to students in the Focus Program. Instructor: Donahue. One course. C-L: Visual Studies 88FCS

156. Movies of the World/The World of Movies. ALP, CCI, STS One course. C-L: see Literature 113; also C-L: English 122, Russian 113, Film/Video/Digital 112

165S. The Vikings and Their Literature. ALP, CCI, EI Norse sagas and poetry and the Viking world that they reflect. Viking cultural history and mythology, with special attention to the collision between the Germanic heroic ethic and the "new" Christian ethic and Norse notions of gender and leadership. Taught in English. Instructor: Keul. One course. C-L: Medieval and Renaissance Studies 165S


173. Romantic Fairy Tales: Literary and Folk Fairy Tales from Grimms to Disney. ALP, CCI, CZ German fairy tales of the Romantic era, including both the "literary fairy tales" by known authors and the "folk fairy tales" commonly deemed children's literature. Comparisons to other fairy tale traditions, notably by Perrault and Basile, providing a broader context and perspective. Comparison to the Disney contributions elucidating our own preconceptions and prejudices. Special attention to the literary, feminist, and historical elements of the fairy tale genre. Taught in English. Instructor: Staff. One course. C-L: English 146, Literature 151E, International Comparative Studies 183A

174. The Melancholy of Art: Passages of Time in European Literature and Cinema, 1819-2000. ALP, CCI One course. C-L: see English 134; also C-L: Literature 151G

182. Classics of Western Civilization: The German Tradition, 1750-1930. ALP, CCI, CZ Introduction to German intellectual traditions that have proven highly influential both within Europe and beyond. Readings typically include Lessing, Moses Mendelssohn, Kant, Goethe, Humboldt, Hegel, Heine, Marx, Nietzsche, Freud, and Benjamin. Readings and discussions in English. Instructor: Pfau. One course. C-L: English 148, History 179A, Political Science 134, Literature 163B

183. The Existentialist Imagination. ALP, CZ, EI Philosophical and literary engagements with fundamental issues of individuality, authenticity, absurdity, finitude, and commitment. Readings primarily from the nineteenth and first half of the twentieth century: Kierkegaard,
Dostoevsky, Nietzsche, Tolstoy, Rilke, Kafka, Hesse, Heidegger, Sartre, Camus. Taught in English. Instructor: Morton. One course. C-L: Literature 132A

185. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924. ALP, CZ, EI
Ethical conflicts in nineteenth-century middle-class society as represented in the development novel (Bildungsroman); different models of political, aesthetic, and religious vocation studied in relation to the rise of nineteenth- and twentieth-century professionalism and social conformism. Taught in English. Instructor: Staff. One course. C-L: Literature 163F, English 149, Ethics

186. Marx, Nietzsche, Freud. CCI, CZ, SS

186D. Marx, Nietzsche, Freud. CCI, CZ, EI, SS
Three principle sources of the twentieth (and now twenty-first) century: the insistence on an ultimate convergence of (revolutionary) theory and practice; the phenomenon of nihilism and the challenge of overcoming it; the exploration of the hidden foundations of the self and of culture. A critical examination and assessment of the thought of Marx, Nietzsche, and Freud. One course. C-L: Philosophy 186D, Literature 186AD, Political Science 195D

187. German Jewish Culture from the Enlightenment to the Present. ALP, CCI, CZ
Key texts (literary, philosophical, and political) from the Enlightenment (18th cent.); periods of emancipation and assimilation, and rising political anti-Semitism (19th cent.); as well as Weimar, Nazi, and postwar periods (20th cent). Authors include Moses Mendelssohn, Lessing, Franzos, Droste-Hülshoff, Marx, Schnitzler, as well as contemporaries such as Korn, Broder, and Biller. Taught in English. Instructor: Donahue. One course. C-L: Literature 163J, Jewish Studies 162

188. Germany Confronts Nazism and the Holocaust. ALP, CCI, CZ, EI
The ways in which official German culture comes to terms with its Nazi past. Background reading in history and politics; primary focus on films, dramas, novels, and poetry, as well as public memorials, monuments, and museums. Authors treated include: Wolfgang Borchert, Rolf Hochhuth, Peter Weiss, Ruth Klüger. Taught in English. Instructor: Donahue. One course. C-L: Literature 163N, Jewish Studies 164, International Comparative Studies

189. Terror and German Cinema. ALP, CCI, CZ
Cinematic (film and television) responses to the terror that plagued Germany in the 1970s and 1980s. Red Army Faction (RAF) and other violent groups of extreme left compared with contemporaneous groups in the United States (e.g., Black Panthers) as well as terror at present. How German culture imagines, explains, and remembers terror perpetrated by its own citizens. Taught in English. Instructor: Donahue. One course. C-L: Literature 112L, Visual Studies 118C

196A. Art and Architecture of Berlin, Fifteenth to the Twentieth Century. ALP, CCI, CZ
One course. C-L: see Art History 190B

196B. Berlin Since the War. CCI, CZ

196C. Jewish Berlin. ALP, CCI, CZ, EI
Overview of German Jewish history and culture, sampling documents, literature, and art from the Enlightenment to the present day. Excursions to Berlin sites, including the Berlin Jewish Museum, Sachsenhausen concentration camp, and the Grünewald Depotation Memorial. Meetings with Jewish cultural leaders and attendance at a service at one of the Berlin synagogues. Taught in English only in the Duke Summer in Berlin program. Instructor: Donahue. One course. C-L: Jewish Studies 163, Literature 163K, International Comparative Studies

312 Courses and Academic Programs
198. Special Topics in German Studies. ALP, CZ Aspects of German culture and civilization. Topics vary. Instructor: Staff. One course.

198S. Special Topics in German Studies. ALP Aspects of German culture and civilization. Topics vary. Instructor: Staff. One course.


261S. Second Language Acquisition Theory and Practice. CCI, R Overview of current research in the fields of second language acquisition and foreign language pedagogy, and its implications for the teaching of the German language, literature, and culture at all levels. Readings and discussions on competing theories of language acquisition and learning, issues of cultural identity and difference, learner styles, and the teaching of language as culture; training in contemporary teaching techniques and approaches. Instructor: Walther. One course. C-L: Linguistics 261S


270. Consciousness and Modern Society. CCI, CZ, EI The German tradition of political theory conceptualizing social transformation through consciousness both of alienation and of ethical ideals; the ongoing debate between activist and radically critical perspectives. Marx, Nietzsche, Lukacs, Freud, Benjamin, Adorno, Marcuse, and Habermas. Taught in English. Instructor: Rolleston. One course. C-L: Literature 270, International Comparative Studies

275S. Hegel's Political Philosophy. EI, R, SS Within context of Hegel's total philosophy, an examination of his understanding of phenomenology and the phenomenological basis of political institutions and his understanding of Greek and Christian political life. Selections from Phenomenology, Philosophy of History, and Philosophy of Right. Research paper required. Instructor: Gillespie. One course. C-L: Political Science 236S, Philosophy 236S

276S. Nietzsche's Political Philosophy. CZ, EI, SS One course. C-L: see Political Science 226S; also C-L: Philosophy 237S

285S. Science and Technology in Nineteenth-Century German Culture. ALP, CCI, CZ, STS Literature and science writing by literary figures (such as Goethe, Novalis, Kleist, Stifter, Musil), the social history of technology, the history of science (especially physics, anthropology, and biology), and philosophy (such as Kant, Marx, Nietzsche, Weber). The German historical context as seen from contemporary American and German understandings. Taught in English, with an optional German section for those reading in the original. Instructor: Staff. One course. C-L: Biology 257S, Information Science and Information Studies

286S. Inventing the Museum: Collecting and Cultural Discourses of the Nineteenth Century. ALP, CCI, CZ, R Examines the rise of the German public museum in its European cultural contexts in the nineteenth century. Uses history and theories of collecting and exhibiting to explore intersecting discourses of architecture, art history, cultural history, literature, and politics that constitute the museum and delineate its privileged place in nineteenth-century German and European culture. Introduces methods for using primary sources in cultural studies research and the study of literature in terms of collecting and exhibiting. Taught in English. Instructor: Staff. One course. C-L: Art History 256S, History 286AS, Romance Studies 286S

298S. Special Topics. ALP Special topics in German literature and cultural studies. Taught in English. Instructor: Staff. One course.

299S. Seminar in German Studies. CCI, CZ, R Review of current debates and historical perspectives in the German cultural field, structured through contributing disciplines: social
and economic history, political theory and history, literature, fine arts, music, philosophy, and religion. Team-taught, involving a wide range of faculty in the German Studies Program. Taught in English. Instructor: Donahue, Rolleston, and staff. One course. C-L: International Comparative Studies 280ES

THE MAJOR

Students majoring in German develop language skills in their social and cultural contexts. The combination of linguistic and cultural competency is excellent preparation for a variety of professional careers in business, government, engineering, law, education, and academia. Double (second) majors are also encouraged and supported. Numerous opportunities are available, including programs of study abroad, interdisciplinary programs, Fulbright and German Academic Exchange Service (DAAD) scholarships, and internships, both before and after graduation. Students interested in a major should consult the director of undergraduate studies.

The German major offers two concentrations.

1. Literature and Culture

The emphasis of this concentration is on the development of superior language proficiency and a deep knowledge of the literature and culture of German-speaking lands.

Requirements. Ten courses, which may include two courses below the 100 level. Eight of the ten courses must be at the 100 level or above, including at least two at the 200 level. These must normally include the advanced conversation and composition courses, German 117S and 118S (or the equivalents taught in Berlin: German 115S, one course credit, or German 119S, two course credits) and one of the literary survey courses, German 121S or 122S. Of departmental courses taught in English, only one may count toward the major.

Note: Duke-in-Berlin economics, history, political science, and art history courses taught in German may also count toward this major concentration.

2. German Studies

This is an interdisciplinary concentration that develops language proficiency and cultural knowledge, while allowing courses with a substantial German component in related disciplines, such as history, political science, music, art history, philosophy, economics, theater studies, women’s studies, and religion.

Requirements. Ten courses, which may include two courses below the 100 level. Courses below the 100 level may include German or other Germanic language courses, or courses taught in other departments that evince a clear focus on German culture, society, and history. Other courses must normally include German 117S and 118S (or the equivalent taught in Berlin: German 119S, two course credits), and at least two courses at the 200 level. A maximum of four courses may be courses with German content taught in English, either in the German department or in other departments, provided such courses evince a clear focus on German culture, society, and history. Courses taken in other departments must be approved by the director of undergraduate studies in the German department.

Note: Duke-in-Berlin economics, history, political science, and art history courses taught in German may also count toward this major concentration.

Departmental Graduation with Distinction

Qualified students (see the section on honors in this bulletin) may apply or be invited to apply for graduation with distinction. The application deadline is preregistration for the fall semester of the senior year. Further information may be obtained from the director of undergraduate studies.

THE MINOR

Requirements. Five courses at the 100 level or above, only one of which may be taught in English.
Note: Duke-in-Berlin economics, history, political science, and art history courses taught in German may also count toward the German minor.

Global Health (GLHLTH)

Associate Professor of the Practice Broverman, Director

A certificate, but not a major, is available in this program.

The Global Health Certificate Program is an interdisciplinary certificate that aims to provide future leaders with tools both to synthesize current knowledge in new ways and to formulate innovative solutions to achieve improvement in the quality of health for underserved populations. These individuals will make a significant contribution to the current challenges facing the world today, as the certificate program will capitalize on Duke's diverse strengths in medicine, law, nursing, and business, as well as its broad arts and sciences base. Specifically, the goals of the certificate program are: 1) to develop an integrated course of study that focuses on the comprehensive nature of global health, drawing on the research and experience of Duke University and Medical Center faculty; 2) to provide students with the theoretical understanding of the determinants of health through their exposure to a variety of disciplines; 3) to develop students' analytical skills, enabling them to apply the knowledge arising from each of these fields towards global health solutions both in an empirical manner and in a mandatory field experience, addressing health disparities first-hand; and 4) to impart to students the preparation for a future in which they influence research and policy surrounding global health.

The program draws upon established research programs relating to global health centered in anthropology, biology, economics, history, law, medicine, philosophy, political science, psychology, public policy, religion, and sociology.

PROGRAM REQUIREMENTS

To meet the requirements of the certificate students must complete the prescribed combination of six courses:

- Public Policy Studies 154/254 Multidisciplinary Analysis of Global Health (introductory course)
- One course in Ethics from the list below of approved courses
- One course in Methods from the list below of approved courses
- Two elective courses from the list below of approved courses
- Capstone Research Seminar in Global Health

Students will also be required to complete a fieldwork experience, approved by the Director of the Global Health Certificate Program. No more than three of the six courses taken to satisfy the requirements of the certificate may originate in a single department or program; moreover, no more than two courses used to satisfy Global Health Certificate requirements may also be used to satisfy the requirements of any major, minor, or other certificate program. Appropriate courses may come from the list given below or may include other courses (new courses, special topics courses, and independent study) as approved by the director.

GLOBAL HEALTH COURSES

150. Multidisciplinary Approaches to Global Health. SS, STS One course. C-L: see Public Policy Studies 154

151. Global Health Ethics: Interdisciplinary Perspectives. EI, SS Ethical issues of conducting research on or working with marginalized/stigmatized populations, using theoretical frameworks and case studies. Investigations of ethical choices made by multinational, national and local policymakers, clinicians, and researchers and their impact on individuals, families and communities. Emphasis on working with community partners in developing needs assessment programs. Topics include: differential standards of care; protection of human subjects; access to essential medicines; genetic information and
confidentiality; pharmaceutical development; health information technology; placebo controlled trials; best outcomes vs. distributive justice. Instructor: Broverman, Buchanan, and Whetten. One course. C-L: Public Policy Studies 155, Global Health

160. Effective Interventions in Global Health: Small Changes with Large Impact. CCI, R, SS Apply multidisciplinary research and intervention studies to global health issues. Examine how people think and the reasons behind the acceptance or rejection of different interventions across cultures. Discuss current issues facing global health workers. Explore how to change small details of social intervention programs to make them more effective. Investigate ways to effectively address barriers to health promotion. Instructor: Ariely. One course.

180. Special Topics in Global Health Studies. SS Topics vary depending on semester and section. Topics may include: global health ethics, field methods, health technologies, rapid needs assessment, and global health policies. Instructor: Staff. One course.

180S. Special Topics in Global Health Studies. Topics vary depending on semester and section. Topics may include: global health ethics, field methods, health technologies, rapid needs assessment, and global health policies. Instructor: Staff. One course.

251. Global Health Ethics: Interdisciplinary Perspectives. EI, SS Same as Global Health 151 but requires an additional paper; not open to students who have taken Global Health 151. Instructor consent required. Instructor: Broverman, Buchanan, and Whetten. One course. C-L: Public Policy Studies 256, Global Health


METHODS COURSES (one of the following)

Biology
103L. General Microbiology

Biomedical Engineering
261. Electronic Designs for the Developing World
262. Design for the Developing World

Civil Engineering
193. Integrated Environmental Design

Cultural Anthropology
125. Comparative Approaches to Global Issues (B, D)
194. Fieldwork Methods: Cultural Analysis and Interpretation

History
137. Comparative Approaches to Global Issues (B, D)

International Comparative Studies
125. Comparative Approaches to Global Issues (B, D)

Political Science
125. Comparative Approaches to Global Issues (B, D)

Psychology and Neuroscience
185DS. Research Methods in Psychopathology and Psychotherapy

Public Policy Studies
55D. Introduction to Policy Analysis
263S. Public Health Research Methods and Issues

Religion
183. Comparative Approaches to Global Issues (B, D)

Sociology
125. Comparative Approaches to Global Issues (B, D)
212. Social Statistics I: Linear Models, Path Analysis, and Structural Equation Systems
ETHICS COURSES (one of the following)

Engineering
108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks

Global Health Certificate
151. Global Health Ethics: Interdisciplinary Perspectives
251. Global Health Ethics: Interdisciplinary Perspectives

Philosophy
162. Human Rights in Theory and Practice

Political Science
162. Human Rights in Theory and Practice

Public Policy Studies
155. Global Health Ethics: Interdisciplinary Perspectives
162. Human Rights in Theory and Practice
256. Global Health Ethics: Interdisciplinary Perspectives

ELECTIVE COURSES (2 of the following)

African and African American Studies
134. Psychology of Ethnicity and Context

Biology
46. AIDS and Other Emerging Diseases
46B. AIDS and Other Emerging Diseases: Focus on Kenya
92FCS. Global Diseases
103L. General Microbiology

Biomedical Engineering
261. Electronic Designs for the Developing World

Cultural Anthropology
125. Comparative Approaches to Global Issues (B, D)

Economics
286. Economic Growth and Development Policy

Engineering
108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks

History
137. Comparative Approaches to Global Issues (B, D)

International Comparative Studies
46B. AIDS and Other Emerging Diseases: Focus on Kenya
125. Comparative Approaches to Global Issues (B, D)

Political Science
125. Comparative Approaches to Global Issues (B, D)
188. Comparative Health Care Systems

Psychology and Neuroscience
133. Psychology of Ethnicity and Context

Public Policy Studies
178. Comparative Health Care Systems
286. Economic Growth and Development Policy

Religion
183. Comparative Approaches to Global Issues (B, D)

Sociology
125. Comparative Approaches to Global Issues (B, D)
164. Death and Dying
171. Comparative Health Care Systems

Greek
For courses in Greek, see “GREEK (GREEK)” on page 201, under classical studies.
Health, Physical Education, and Recreation (PHYSEDU)

Professor of the Practice Dale, Chair; Assistant Professor of the Practice Yakola, Director of Undergraduate Studies; Professors Buehler and LeBar; Assistant Professor of the Practice Hampton; Instructors Alphin, Beguin, Bowen, Brame, Daffron, Dall, Falcone, Forbes, Hackett, Jindra, Kaufmann, Kempe, Miller, Nelson, Ogilvie, Orr, Rollins, Serenelli, Spector, Thompson, Wasielewski, Welsh, Worden, and Wort

Courses in this program do not count toward distributional requirements.

ACTIVITY COURSES

Each activity course listed below carries a half-course credit and is given on a pass/fail basis. The maximum amount of credit that counts for the undergraduate degree is one full course, but additional courses may be taken without credit toward graduation. Students may repeat activity courses.


19. Massage Therapy. Emphasis on techniques and philosophies of massage therapy which enhance the connection of body, mind, and spirit. Benefits and healing potential. Techniques which can be integrated into a more healthy lifestyle. Instructor: Brame. Half course.


22. Lifeguard Training. American Red Cross course which prepares an individual to qualify as a lifeguard. Preventative lifeguarding, emergencies, health and sanitation, water rescue and special situations, search and recovery operations, weather and environmental conditions. Instructor: Forbes. Half course.


42. Advanced Tennis. Stroke development with emphasis on strategy. Instructor: LeBar. Half course.
44. Training x 3. Designed to incorporate training through indoor cycling, swimming, and running, with focus on fitness training through strength and endurance exercise. Introduction to a variety of styles of fitness training at all fitness levels, and assistance with designing individual fitness programs. Prerequisite: ability to swim at an intermediate level recommended. Instructor: Ogilvie and Worden. Half course.
45. Indoor cycling. Introduction to indoor cycling as an exercise option for all levels of fitness. Focus on a variety of simulated rides at varying degrees of intensity. Learn proper riding technique, correct bike settings, and appropriate intensity levels for a safe, effective workout. Instructor: Worden. Half course.
57. Short Staff Aikijo. Basic principles and movements with short staff; foundational movements of Aikijo through study and practice of short and long forms. Instructor: Kaufmann. Half course.
63. **Cardio-Kickboxing.** A noncontact activity designed to teach self-defense techniques while building the muscular and cardiovascular systems. Instructor: Bowen. Half course.

64. **Intermediate Cardio-Kickboxing.** A workout that combines aerobics, cardiovascular and body toning while learning more advanced boxing and kickboxing skills for self-defense tactics. Prerequisite: Physical Education 63. Instructor: Bowen. Half course.

65. **Yoga.** Traditional hatha yoga combined with balanced structural alignment to develop strength, flexibility, and mental concentration. Instructor: Orr or Spector. Half course.

66. **Intermediate Yoga.** Building on previous hatha yoga experience to deepen student's practice, level of mindfulness, and understanding of philosophy relevant to experiential work with the goals of improved flexibility, strength, balance, concentration, and calmness. Prerequisites: Physical Education 65 or previous hatha yoga experience. Instructors: Orr or Spector. Half course.

67. **Mixed Martial Arts Training.** A high energy workout designed to develop physical fitness while learning realistic self defense, kick boxing, and ground fighting techniques, to provide the student with a wide self defense system. Instructor: Bowen. Half course.

72. **Social Dancing.** Waltz, foxtrot, tango, cha-cha, rumba, jitterbug, rock, disco, and others. Instructor: Daffron. Half course.


75. **Latin Dance.** Salsa, cha-cha, rumba, merengue, samba, mambo, and others. Instructor: Daffron. Half course.

76. **Advanced Latin Dance.** Merengue, salsa, tango, rumba and cha-cha. Prerequisite: Latin dance experience or consent of instructor. Instructor: Daffron. Half course.

77. **Swing Dancing.** Introduction to East Coast Swing, West Coast Swing, Jive, Lindy Hop, and Jitterbug. Instructor: Daffron. Half course.

79. **Beginning Equitation.** Introduction to horseback riding: basic horsemanship; walk, trot, and canter. Instructor: Rollins. Half course.


90. **Advanced First Aid and Cardiopulmonary Resuscitation.** Certification in advanced first aid and CPR. Instructor: Staff. Half course.


95. **Wilderness Skills.** Basic and/or intermediate outdoor camping and leadership skills: orienteering, navigation, campcraft, equipment, trip planning, first aid and safety, with emphasis on “learning by doing.” Instructor: Hackett. Half course.

96. **Basketball.** Development of individual and team skills. Instructor: Welsh. Half course.

**THEORY COURSES**

Each Theory course listed below carries one course credit. Taking Theory classes does not cancel a student’s ability to take two Activity classes for credit towards their undergraduate degree. Theory classes are general electives.

98S. **First-Year Seminar.** Topics vary each semester offered. Instructor: Buehler. One course.

110. **Diet and Nutrition.** How diet affects well-being and reduces risk of certain diseases. Basic nutrition principles, sports performance enhancement, supplements, disordered...

**111. Hot Topics in Health.** Current media hot topics in health and wellness, dispelling myths and assuring accuracies in the field. Focus on sexual health, nutrition, physical fitness, smoking, alcohol, body image, mental health, and more. Instructor: Alphin. One course.

**120. Theory and Practice of Coaching.** Fundamentals, strategies, and psychology of coaching. Emphasis on basketball, and track and field. Additional topics such as safety and liability, gender equity, the media, regulations, and ethics. Instructor: Welsh. One course.


**152. Women's Health Issues.** Lifetime fitness, nutrition, body image, self esteem, health issues, realistic social norms, and healthy coping mechanisms. Instructors: Hampton and McNally. One course.

**160. Sport Finance.** Financial resource management in the sports industry including forms of ownership, financial analysis, feasibility studies, revenue generation, economic impact, and current issues. Instructor: Yakola. One course.

**170. History and Issues of Sports.** Sports from ancient to modern times with an emphasis on sports in America. Not open to students who have taken this course as Health, Physical Education, and Recreation 49S. Instructor: Buehler. One course.


**174. Sports Marketing.** The multi-faceted elements associated with marketing within the sports industry. Instructor: Yakola. One course.

**180. Performance Enhancement in Sport and Physical Activity.** To provide students with an in-depth view of the theoretical and applied aspects of the psychology of sport and physical activity with an emphasis on performance enhancement. Instructor: Dale. One course.


**192. Independent Study.** Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Instructor: Staff. One course.

## Health Policy (HTHPOL)

Assistant Research Professor Conover, *Director*

A certificate, but not a major, is available in this program.

The Center for Health Policy, a part of the Terry Sanford Institute of Public Policy, offers an interdisciplinary certificate in health policy. The program speaks to the needs of students preparing for careers in health care policy, management, and the associated professions as the American health care industry continues to experience rapid and profound change.

Courses in the Health Policy Certificate Program address three interrelated goals: (1) to investigate the machinery of contemporary health policy-making and to understand the broad political dynamics which have conditioned American health policy, past and present; (2) to familiarize students with the institutional and economic complexity of the American health care system through the study of the interaction between the key players in health
care financing and organization, employers, private insurance carriers, government regulators, health care providers, and consumers; and, (3) to explore the cultural and ideological underpinnings of modern conceptions of health and the recurrent ethical dilemmas facing health care providers, patients, and policymakers.

The program draws upon established research programs relating to health services centered in economics, political science, public policy, and sociology but recognizes the inspired contributions to health care debates originating in the disciplines of anthropology, history, law, medical arts, philosophy, psychology, and religion.

PROGRAM REQUIREMENTS

The Health Policy Certificate Program is open to all undergraduates. Successful candidates must complete the prescribed combination of six courses: an introductory course; any one methods course; two courses drawn from the core set of health policy course offerings; any one additional elective course; and the capstone course. No more than three of the six courses taken to satisfy the requirements of the certificate may originate in a single department or program; moreover, no more than two courses used to satisfy Health Policy Certificate requirements may also be used to satisfy the requirements of any other major, minor, or other certificate program. Appropriate courses may come from the list given below or may include other courses (new courses, special topics courses, independent study, and, under special circumstances, courses offered through the UNC School of Public Health*) as approved by the director.

For further details, contact the director at the Center for Health Policy, Room 126 Rubenstein Hall, or consult the program Web site at http://www.hpolicy.duke.edu/certificate.

INTRODUCTORY COURSE (required).

111. Introduction to the United States Health Care System. SS One course. C-L: see Public Policy Studies 111

CAPSTONE COURSE (required).


Other Health Policy Courses

295. Topics in Health Policy. Topics vary by semester. Instructor: Staff. One course.

METHODS COURSES (any one course):

- Economics
  - 55D. Intermediate Economics I
  - 261. Evaluation of Public Expenditures
- Environment
  - 272. Evaluation of Public Expenditures
- Public Policy Studies
  - 55D. Introduction to Policy Analysis
  - 261. Evaluation of Public Expenditures

CORE COURSES (any two courses):

- Regularly Scheduled Courses
  - Economics
    - 156. Health Economics
  - Law
    - 347. Health Care Law and Policy
  - Political Science
    - 188. Comparative Health Care Systems
    - 249. The Politics of Health Care

* Subject to regulations governing interinstitutional course registration. Note that the UNC School of Public Health semesters and daily schedules differ from those of Arts and Sciences at Duke.
Public Policy Studies
156. Health Economics
157. Health Policy
178. Comparative Health Care Systems
253. The Politics of Health Care
263S. Public Health Research Methods and Issues

Sociology
171. Comparative Health Care Systems

Special Topics Courses, Offered Periodically (counting as Core Courses)

Public Policy Studies
49. Evolution of the United States Health Care System (may be substituted for Health Policy 111/Public Policy Studies 111)
264S. Getting Value for Money in Health Care: Rationing in Theory and Practice

Sociology
227S, C. Proseminar in Medical Sociology. Organization and Financing of Health Care. (May not be counted toward certificate if Sociology 227D is counted.) One course.

ELECTIVE COURSES (any 2 courses)

Regularly Scheduled Courses

Economics
163. Economics of the Environment
251S. Regulation of Vice and Substance Abuse
270. Resource and Environmental Economics

Environment
149. United States Environmental Policy
163. Economics of the Environment
270. Resource and Environmental Economics
274. Environmental Politics

History
123. Madness and Society in Historical Perspective
189B. History of Public Health in America

Philosophy
118. Philosophical Issues in Medical Ethics

Psychology and Neuroscience
109A. Health Psychology

Public Policy Studies
149. United States Environmental Policy
251S. Regulation of Vice and Substance Abuse
272. Resource and Environmental Economics
274. Environmental Politics

Religion
182. Medicine and Religion in American Society

Sociology
163. Aging and Health

Hebrew
For courses in Hebrew, see Asian and African Languages and Literature.

Hindi
For courses in Hindu see Asian and African Languages and Literature.

History (HISTORY)
Professor Reddy, Chair; Associate Professor Thorne, Associate Chair; Associate Professor Robisheaux, Director of Undergraduate Studies; Professors Chafe, Deutsch, L. Dubois, Edwards, English, French, Gaspar, Gavins, Humphreys, Koonz, Kuniholm, Martin, Mauskopf, M. Miller, Ramaswamy, Reddy, Roland, Shatzmiller, Thompson, and Wood;
Associate Professors Balleisen, Ewald, Hacohen, Huston, Mazumdar, Neuschel, Partner, Peck, Robisheaux, Thorne, and Sigal; Assistant Professors Bonker, Fenn, Kornbluh, Krylova, Olcott, and Sachsenmaier; Professors Emeriti Cahow, Colton, Davis, Durden, Franklin, Goodwyn, Herrup, Holley, W. Lerner, Scott, TePaske, Witt, and Young; Associate Professor Emeritus Nathans; Adjunct Professors Roberts and Wilson; Adjunct Assistant Professors Jakubs, Morrow, and Troost; Visiting Associate Professors Y. Miller and Shapiro; Visiting Assistant Professors K. Dubois, Freeman, Hart, and Kaiwar; Visiting Scholars G. Lerner and Kennetta Perry

A major or a minor is available in this department.

History courses offer students from all disciplines within the university an opportunity to investigate the past, gain perspective on the present, and improve their critical faculties. History provides an integrating principle for the entire learning process, and students of history gain a sense of human development, an understanding of fundamental and lasting social processes, and a feeling for human interrelatedness. History courses train the mind by improving skills in communicating thought and imagination.

21D. Europe to the Eighteenth Century. CCI, CZ, W Development and world impact of European civilization, critical evaluation of historical interpretations, and investigation of history from primary sources. Instructor: Staff. One course.

22D. Europe from the Eighteenth Century. CCI, CZ Development and world impact of European civilization, critical evaluation of historical interpretations, and investigation of history from primary sources. Instructor: Staff. One course.

25. Introduction to World History: To 1700. CCI, CZ, W The beginning and evolution of civilization; major traditions of Eurasia (Greek, Christian European, Indian, Chinese, Islamic); Africans and American Indians; the European invasion of America; foundations of the European world economy; Europe's preparation for world hegemony. Instructor: Staff. One course. C-L: International Comparative Studies

26. Introduction to World History: Since 1700. CCI, CZ Establishment of European political, economic, and cultural hegemony; non-Western responses; the decline of Western hegemony. Instructor: Staff. One course. C-L: International Comparative Studies

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

75. Topics on the Third World and the West. CCI, CZ First part of a two-course sequence examining economic, social, political, and cultural relationships, 1500 to the present. Topics may vary each semester. Instructor: Staff. One course. C-L: African and African American Studies 70, International Comparative Studies, Latin American Studies

76. Topics on the Third World and the West. CCI, CZ Continuation of History 75. Instructor: Staff. One course. C-L: African and African American Studies 71, International Comparative Studies, Latin American Studies

89FCS. Special Topics in Focus. CZ Open only to students in the Focus Program. Current list of courses available in the Focus Program brochure. Instructor: Staff. One course.

91D. American History to 1876. CZ History of what is now the United States from pre-Columbian times to 1876. Covers exploration, colonization, Native American responses, the rise of race slavery, the American Revolution, Anglo-American expansion, slave life and culture, industrialization, reform, disunion, the Civil War, emancipation, and Reconstruction. Emphasis on social developments, conflicting political and economic visions, and tensions between ideals and reality. Instructor: Staff. One course.

92D. America from 1877 to the Present. CZ, EI American history from the end of Reconstruction to the present. The impact of industrialization, immigration, urbanization, and the rise of mass culture in the United States; the effect of depressions and wars on American society and politics; and the roots and results of reform movements ranging from populism and progressivism to the civil rights, women's, and environmental movements. Ongoing debates about the government's proper economic and social role; changing views
of ethnicity, race, and gender in America, and the determinants of United States foreign policy. Instructor: Staff. One course.

98. Introduction to Canada. SS One course. C-L: see Canadian Studies 98; also C-L: Political Science 98, Sociology 98, International Comparative Studies 98


100. A-R, U-V. Duke-Administered Study Abroad: Advanced Special Topics in History. CCI Register for course by designated suffix indicating the specific country. Courses numbered 100 with a letter suffix (100A, 100B...100V) are lecture courses taught in Duke-administered study-abroad programs, for example, in Germany, Italy, France, China. These courses provide the same credit and fulfill the same curriculum requirements as any 100-level lecture course in the history department. Instructor: Staff. One course.

100A. Duke in Madrid: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100E. Duke in China: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100F. Duke in France: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100H. Duke in Andes: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100I. Duke in Italy: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100J. Duke in Russia: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100K. Duke in Australia: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100L. Duke in Germany: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100MS. Duke in Oxford: Special Topics on History. CCI, CZ Instructor: Staff. Two courses.

100N. Duke in Istanbul: Special Topics on History. CCI, CZ Duke-Administer Study Abroad Program. The undergraduate program in history is designed to introduce students to major conceptual tools and research methods of historical study, while providing a historical depth of field for the understanding of the contemporary world. Instructor: Staff. One course.

100O. Duke in Vienna: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100R. Duke in Venice: Special Topics on History. CCI, CZ Instructor: Staff. One course.

100S. Study Abroad: Seminar on Historical Topics. CCI, CZ Register for country by the section designated in the Official Schedule of Courses. Instructor: Staff. One course.

100W. Duke in South Africa: Special Topics on History. CCI, CZ Instructor: Staff. One course.


101ES. Nationalism and Exile. CCI, CZ, R The dilemmas confronting Russian and European exiles in the nineteenth and twentieth centuries in the context of nation-state identities. Focuses on political and literary exiles forced from their native countries. Central to the study is the role of the modern nation-state, from whose boundaries the exiles were expelled. Instructor: M. Miller. One course.

101F. Rome: History of the City. ALP, CCI, CZ One course. C-L: see Classical Studies 145; also C-L: Art History 126A

101G. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 146; also C-L: Cultural Anthropology 147, Medieval and Renaissance Studies 146A, International Comparative Studies 141A, Information Science and Information Studies, Ethics
102AS. Explorations of North America. CCI, CZ, R Designed for new majors in history, the seminar explores how historians recreate the past. Explorations of North America will span the era from the Vikings to Lewis and Clark; their armies, their motives, their technologies, their limited sense of geography, and their responses to the Native Americans. Different approaches to history, from biography and literature to anthropology, archaeology and statistics. Instructor: Wood. One course.

102G. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 147; also C-L: Cultural Anthropology 148, Medieval and Renaissance Studies 147A, International Comparative Studies, Ethics

103. Lectures in Special Topics. CZ Individual courses in this series may be taught more than once or on a one-time basis only. Instructor: Staff. One course.

104. Lectures in Special Topics. CZ Individual courses in this series may be taught more than once or on a one-time basis only. Instructor: Staff. One course.

105. Gateway Lecture. CZ, R Introduction to historical analysis and research in a small lecture setting (limited to 25 students). Students learn how to formulate research questions, evaluate existing scholarship, interpret historical evidence, craft historical argument orally and in writing. Different topics are offered each semester. Either History 105S or 105 is required for the major. Instructor: Staff. One course.

105S. Gateway Seminar. CZ, R Introduction to historical analysis and research in a seminar setting. Students learn how to formulate research questions, evaluate existing scholarship, interpret historical evidence, craft historical argument orally and in writing. Several sections on different topics are offered each semester. Either History 105S or 105 is required for the major. One course.

106S. Seminar in Selected Topics. CZ Instructor: Staff. One course.


107B. Modern Britain. CCI, CZ, W Introduction to British history in the modern period, eighteenth century through the present. Impact of industrialization and imperial expansion on political culture, social relations of class and gender, and national identity. Imperial comparisons and connections to the British experience. Instructor: Thorne. One course. C-L: International Comparative Studies 180F

108E. Imagining the North American West: History and Myth, 1850-Present. CCI, CZ, SS Major themes in the history of North American West (western Canada, United States, and northern Mexico) from the mid-nineteenth century to present, from the frontier to industrialization, Native Americans to Hollywood, Calamity Jane to Shane. Organized around thematic and chronological questions: The relationship between mythic and real Wests; the continent's most radical region in 1900 became its most conservative by 1980. Instructor: Staff. One course.

110A. Religion in China. CCI, CZ One course. C-L: see Religion 110

111A. North America to 1760. CCI, CZ, SS Early oceanic explorations, European invasion of North America, the evolution of race slavery, and the responses of the native American peoples. Instructor: Fenn or Wood. One course. C-L: International Comparative Studies

111B. The Era of the American Revolution, 1760-1815. CZ, SS Origins, evolution, and consequences. Attention to economic, social, and geographical questions, as well as military, political, and moral issues. Instructor: Fenn or Wood. One course.

111C. The New Nation: The United States, 1800 to 1860. CZ, SS Examines the transformation of the new republic into a nation, focusing on the development of political institutions, the market economy, western expansion, and conflicts over slavery and the
meaning of "freedom" for a wide range of people in the new nation. Instructor: Staff. One course.

111E. The Civil War and Reconstruction: The United States, 1850-1880. CZ, SS The social, economic, and cultural aspects of the Civil War's origins and outcomes as well as the resulting military, political, and legal conflicts. Focus on the contested and changing meanings of "freedom" in all sections of the country. Not open to students who took either History 163A or 163C. Instructors: Balleisen, Edwards, Glymph, Huston, Thompson, or staff. One course.

111F. The Gilded Age and the Progressive Era: The United States from 1870 to 1913. CZ, SS Industrialization, immigration, westward migration, and increased United States involvement in world political and economic affairs. The resulting political upheavals and the efforts of various groups to promote, control, or alter change. Not open to students who took History 129B. Instructors: Balleisen, Edwards, Deutsch, Glymph, Peck, Thompson, or staff. One course.

111G. Modern America: The United States from 1930 to present. CZ, SS The upheavals of recent United States history, including the New Deal, World War II, the Civil Rights Movement, and other movements for social change, the Vietnam War, the development of a global economy, the political realignments of the 1980s, and the nation's new role on the world stage. Not open to students who took History 160. Instructors: Chafe, Kornbluh, Thompson, or staff. One course.

111H. The Origins of Modern America: United States, 1914-1941. CCI, CZ Post World War I transformations in foreign relations, technology, literature, the arts, political and economic thought and practice; the rise of a consumer society, the growth of the state, the increase in Mexican immigration, the "New Negro," and the "Modern Woman" during the "roaring twenties" and the Great Depression. Instructor: Deutsch, Thompson, and staff. One course.

112A. Modern Political Thought in China and Europe. CCI, CZ, SS Development of political thought in different parts of the world, with focus on Europe and China. How some ideologies such as nationalism or communism turned into powerful movements in China and parts of the West. Central aspects of modern Chinese and Central European History. Instructor: Sachsenmaier. One course. C-L: Asian and African Languages and Literature 182

113A. The 1960s: History and Public Policy. CZ, R, SS This course explores domestic and foreign policy in the turbulent 1960s. We study Vietnam, the War on Poverty, and the interactions between movements and policy on civil rights, women's rights, and the fate of the cities. Instructor: Kornbluh. One course. C-L: Public Policy Studies 113

113B. Europe's Colonial Encounter, 1492-1992. CCI, CZ, EI The impact of colonial expansion on European economic development, political culture, and popular identity from the "age of discovery" through the present. Particular attention to the ethical implications of colonialism's influence on Western "civilization." Instructor: Thorne. One course. C-L: African and African American Studies 113B, Ethics


115B. History and Modern Africa. CCI, CZ, SS Beginning with the dynamics of African societies before the onset of European engagement in the continent and covering the impact of the Atlantic economy; expansion of long distance maritime and overland trade; Islam and Islamic reform; state formation; responses to colonialism; independence movements; the
postcolonial state. African novels, autobiographies, and films, as well as scholarship by Africans. Not open to students who have taken the former History 115. Instructor: Ewald. One course. C-L: African and African American Studies 115B, International Comparative Studies, Women's Studies

115C. Introduction to African Studies. ALP, CCI, CZ One course. C-L: see African and African American Studies 107; also C-L: Cultural Anthropology 136, English 180, Political Science 174

116. The Living Middle Ages. ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 114; also C-L: Art History 139, Classical Studies 139, English 123C

116S. Aspects of Medieval Culture (DS1). ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 114S; also C-L: Art History 139S, Classical Studies 139S, English 123CS

118B. Warfare in the Twentieth Century. CCI, CZ, EI, STS Key conflicts of this century evaluated in terms of causes and consequences (political, social, and economic) and strategy and technology (war plans, weapons systems, and doctrine). Comparison across regions of the world while addressing moral, legal and ethical questions regarding international conflict. Instructor: Staff. One course.

118C. History of the World Wars. CZ, EI, R, STS An examination of the origins, course, and consequences of the world wars of this century. Close attention is paid to impact of warfare on society and the ensuing moral and political controversies. Instructor: Staff. One course.


118F. Western Warfare since 1789. CCI, CZ, SS European and United States conduct of war since 1789, ranging from the French Revolutionary and Napoleonic wars to the current United States pursuit of war in the Middle East and beyond. Focus on the nature and aims of Western warfare and the practices, languages, and experiences of its participants. The shifting ways in which military force has been used against soldiers and civilians. Instructor: Bonker. One course.

121A. Roman History. CCI, CZ, W One course. C-L: see Classical Studies 154

121B. Greek History. CCI, CZ One course. C-L: see Classical Studies 153

123. Madness and Society in Historical Perspective. CCI, SS, STS Mental illness and psychiatric treatment from antiquity to the present with special concentration on the nineteenth and twentieth centuries in Europe, America, and Russia. Instructor: M. Miller. One course. C-L: International Comparative Studies, Health Policy


125B. Modern American Legal History. CCI, CZ, R, SS Law and society in the United States from the American Revolution to the present. Changing institutional structures of the American legal system, popular understandings of legal authority, and the social uses of law. Includes such topics as property, crime, and legal personhood; the law's impact on social identity and access to power; the consequences of economic and social transformations for America's legal order. Instructors: Balleisen, Edwards or Kornbluh. One course.

125D. The Enlightenment: A Social, Cultural, and Intellectual Survey. CCI, CZ, W The period's intellectual trends (the rise of modern science, modern social and political theory, philosophy, and individualism) studied in their original context. Subjects examined include modes of production; political authority; empire; literature, art, and music; fashion
and leisure; news, gossip, and scandal; outbreak of revolution. Instructor: Reddy. One course.

126A. United States Political History, 1789-1900. CZ, SS The development of American politics between the end of the Revolution and 1900. The extension and limitations of democracy; the emergence and extension of parties as the central institution of politics; the relationship between popular political initiatives and party politics; the clash and transformation of party policies and ideologies; and the growth and transformation of the American state. Instructor: Huston. One course.

126B. United States Political History, 1900 to the Present. CZ, SS U.S. political history from 1900 to the present. Topics include the emergence, evolution, and decline of a "liberal" coalition; the creation of a "conservative" coalition; the development of a powerful federal state and its social and political results; the role of money in politics; the transformation of voting rights and voter participation; reform and radical movements and their relationship to party politics and the federal government. Instructor: Huston. One course.

126D. American Dreams/American Realities. CCI, CZ The role of such myths as "rags to riches," "beacon to the world," the "frontier," and the "foreign devil" in defining the American character and determining hopes, fears, dreams, and actions throughout American History. Attention given to the surface consistency of these myths as accepted by each immigrant group versus the shifting content of the myths as they change to reflect the hopes and values of each of these groups. Not open to students who have taken 97D. Instructor: Wilson. One course.

127A. The Caribbean, 1492-1700. CCI, CZ The Caribbean region from the arrival of Columbus (1492) to the emergence of sugar and slavery as powerful shapers of society and culture, by 1700. Instructor: Gaspar. One course. C-L: African and African American Studies 127A, International Comparative Studies, Latin American Studies


128S. Introduction to Oral History. CZ, R One course. C-L: see Documentary Studies 110S


129S. Behind the Veil: Methods. CCI, CZ, R One course. C-L: see Documentary Studies 125S; also C-L: African and African American Studies 125S

130B. Introduction to Economic History. CCI, CZ, SS One course. C-L: see Economics 132

131B. Representing the Middle East. CCI, CZ, SS One course. C-L: see Cultural Anthropology 132; also C-L: Asian and African Languages and Literature 132, Turkish 132, International Comparative Studies 141B, Visual Studies 110H, Islamic Studies

133C. British Isles in the Middle Ages. CCI, CZ, EI From the fifth through the fourteenth centuries. Not open to students who have taken History 134. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 133B


134B. History of Jews in the Late Middle Ages. CCI, CZ, R The period between the year A.D. 1000 and A.D. 1500. Jewish activity in western Europe; the church's attitude toward
the Jews; their monetary activity and the history of their families and their private lives. Instructor: Shatzmiller. One course. C-L: Medieval and Renaissance Studies 134B, Jewish Studies 146

134C. Jewish History, 1780's to the Present. CCI, CZ, EI, SS Major developments in Western Jewish history from the Enlightenment to today. Emancipation, economic rise, demographic patterns, Western migration, Jewish intellectuals, the Jewish left, cultural contributions, the emergence of racial antisemitism, Zionism, the Holocaust, Jewish pluralism in the United States, the future. Instructor: Hacohen. One course. C-L: Jewish Studies 147, Ethics

135A. Europe in the Twentieth Century. CCI, CZ An examination, emphasizing cultural and political trends, of the turning points that have shattered political unity (two world wars, economic depression, protest movements, the Cold War and ethnic strife), as well as forces for unification (modemist literature, film and music, political ideologies, the Common Market, and post-1989 revival). Instructor: Koonz. One course. C-L: International Comparative Studies 180G

135B. Weimar and Nazi Germany. CZ, R The impact of World War I on German morale, the emergence of an exciting avant garde culture in Berlin, the establishment of a multiparty parliamentary government, women's emancipation, and economic crisis in the hyperinflation of 1922 and the Great Depression. Against this progressive background, Hitler's mobilization of masses of followers, seizure of power, and establishment of the first racial society. The killing fields and concentration camps on the Eastern Front. Instructor: Koonz. One course. C-L: Visual Studies 119A, International Comparative Studies

136A. Introduction to Contemporary Latin America. CCI, CZ Interdisciplinary introduction to the peoples, cultures, and burning issues of contemporary Latin America and the Caribbean. Required course for students seeking the certificate in Latin American Studies. Instructor: French, Olcott, or staff. One course. C-L: Latin American Studies 136, International Comparative Studies 132A

137. Comparative Approaches to Global Issues (B, D). CCI, CZ, SS One course. C-L: see International Comparative Studies 125; also C-L: Cultural Anthropology 125, Political Science 125, Religion 183, Sociology 125, Global Health, Global Health

138. Reformation Europe. CCI, CZ The interplay of social, economic, and political developments in Central Europe from the eve of the Reformation to the end of the Thirty Years' War, with particular attention to the links between religion, gender, and the social order. Instructors: Heuschel, Neuschel, and Robisheaux. One course. C-L: Medieval and Renaissance Studies 138, International Comparative Studies

139B. Modern South Asia. CZ, EI, W South Asian history from the rebellion of 1857 to independence and partition in 1947. Topics include the impact of colonial rule on the economy; politics and social formation of the subcontinent; the rise of nationalism; religion and politics; and the position of women. Rights for religious minorities, women, and lower caste people and the ethical/moral basis for new nations. Instructor: Kaiwar. One course. C-L: International Comparative Studies 170F

140B. Multinationalism and Multiculturalism in the Slavic World. CCI, CZ One course. C-L: see Russian 137

141A. The Turks: From Ottoman Empire to European Union. ALP, CCI, CZ, R One course. C-L: see Turkish 135; also C-L: Cultural Anthropology 152, Religion 161F, Islamic Studies

141B. History of Economic Thought. CCI, R, SS, W One course. C-L: see Economics 148; also C-L: International Comparative Studies, Politics, Philosophy, and Economics

142. Dante's Divine Comedy: Hell, Purgatory and Paradise. ALP, CCI, CZ, EI One course. C-L: see Italian 143; also C-L: Medieval and Renaissance Studies 166, Religion 161G, International Comparative Studies
143A. Ancient and Early Modern Japan. CCI, CZ Japan from earliest settlement to 1868; the Heian Court, rise of the samurai, feudal society and culture, the Tokugawa age, and the Meiji Restoration. Instructor: Staff. One course. C-L: International Comparative Studies

143B. The Emergence of Modern Japan. CCI, CZ A survey of modern Japanese history from 1850 to the present. Emphasis on social change as experienced by ordinary people. Includes a comparative overview of Japan's experience of modernity. This class is not open to students who have taken History 122A. Instructor: Staff. One course. C-L: Markets and Management Studies, International Comparative Studies

144A. The Crusades to the Holy Land. CCI, CZ, R The crusades to the Holy Land and other manifestations of European expansionism, for example, the reconquest of Spain and the foundation of a Norman Kingdom in Sicily. Instructor: Shatzmiller. One course. C-L: Medieval and Renaissance Studies 144C, Jewish Studies 148

144B. Tolstoy and the Russian Experience. ALP, CCI, CZ, EI One course. C-L: see Russian 144

145A. Africans in America to the Civil War. CCI, CZ, EI African, European, and Indian interactions; the black experience of slavery and racism; the evolution of Afro-American culture, resistance, and the general emancipation; ethical concepts and issues on human justice in the course of racial oppression and freedom struggle. Instructor: Gavins. One course. C-L: African and African American Studies 145A, International Comparative Studies, Documentary Studies

145B. African Americans Since the Civil War. CCI, CZ, EI Post-slavery black life and thought, as well as race relations and social change, during Reconstruction, Jim Crow, the Civil Rights and Black Power Movements, and contemporary times; ethical concepts and issues on human justice in the course of struggles for democracy, tolerance, and equality. Instructor: Gavins. One course. C-L: African and African American Studies 145B, International Comparative Studies, Documentary Studies

145C. African American Women and History. CCI, CZ One course. C-L: see African and African American Studies 137; also C-L: Women's Studies 137

146A. Adam Smith and the System of Natural Liberty. SS, STS One course. C-L: see Economics 146; also C-L: International Comparative Studies, Politics, Philosophy, and Economics

147. Magic, Religion, and Science since 1400. CCI, CZ, STS The history of magic and witchcraft in western culture from the Renaissance to the present, with particular attention to the relationship of supernatural beliefs to religion and science. The renewal of magic, astrology, and alchemy in the Renaissance; early modern witch beliefs and the witch hunt; national skepticism in the Enlightenment; modern marginal sciences such as parapsychology; and adaptations of magical beliefs to modern culture in the nineteenth and twentieth centuries. Instructor: Robisheaux. One course. C-L: Medieval and Renaissance Studies 147B

148A. Aspects of Renaissance Culture. ALP, CCI, CZ One course. C-L: see Medieval and Renaissance Studies 115; also C-L: Art History 149, Italian 134, English 123E

148B. History of Medieval and Renaissance Italy. ALP, CZ The history and literature of the first early modern European culture and society. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 148B

149. World Military History. CZ, STS Comparative study of war as a social institution in different times and cultures. Topics include the origins of war and war in ancient China, classical Greece, the Middle Ages, early modern Europe, colonial America, nineteenth-century Japan, the cold war, and Vietnam. The impact of technological developments on war and the way in which the tools of war shaped conflict between societies. Instructor: Roland. One course. C-L: International Comparative Studies 102C

150CS. Documentary Research Methods. ALP, R One course. C-L: see Documentary Studies 120S

150E. Russian Revolutionary Cinema. CCI, CZ The origins and development of the revolutionary and experimental cinema in Russia during the last years of the Empire and after the seizure of power by the Bolsheviks in 1917. Films include the classics of the silent Soviet cinema directed by Eisenstein as well as other films by other influential directors. The transition into the Stalinist cinema of the 1930s and comparisons with Hollywood films of that era. Instructor: M. Miller. One course. C-L: Russian 150, Film/Video/Digital

150ES. Freedom Stories: Documenting Southern Lives and Writing. ALP, CCI, CZ One course. C-L: see Documentary Studies 112S; also C-L: African and African American Studies 112S

151A. The History of the Renaissance in Europe 1250-1550. CZ, W Not open to students who have taken History 104. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 151A, International Comparative Studies

152. The Modern Middle East. CCI, CZ The historical development of the Middle East in the nineteenth and twentieth centuries. The emergence of nation-states in the region following World War I. Instructor: Y. Miller. One course. C-L: Jewish Studies 149, International Comparative Studies


153C. World War II and French Film. CCI, CZ, EI, FL One course. C-L: see French 156; also C-L: Film/Video/Digital 117, Visual Studies 126F, Film/Video/Digital

154CD. The History of Emotions. CCI, CZ, R, W Codes of conduct aimed at the management, expression, and concealment of emotion over the last thousand years of European history, with a focus on the self, manners, dress, romance, and aggression; comparison of developed Western notion of emotions with configurations of emotional expression and emotional practices in selected other parts of the world: within Islam, the Hindu tradition, Japan, certain postcolonial settings. Not open to students who have taken History 154C or Cultural Anthropology 154. Instructor: Reddy. One course. C-L: Cultural Anthropology 154D

156A. The Reformation of the Sixteenth Century. CCI, CZ, EI One course. C-L: see Religion 158; also C-L: Medieval and Renaissance Studies 156A, International Comparative Studies 181H, Ethics

156B. History of the Christian Church. CCI, CZ, EI One course. C-L: see Religion 120

157A. Rise of Modern Science: Early Science through Newton. CZ, STS, W The development of science and medicine with attention to cultural and social influences upon science. Instructor: Mauskopf. One course. C-L: Medieval and Renaissance Studies 157A


160D. The History of Romantic Love. ALP, CCI, CZ, EI, W Examines how romantic love has been understood and practiced in the European and North American traditions, from ancient times to the present. Comparison with the Hindu and Japanese traditions to reveal what is unique about Western romantic love. Comparison of art and literature to the practices
of real people. Transformations of norms and ideals since ancient times with focus on ethical questions about the permissibility of desire in all its forms, the proper relationship between love and marriage, and the moral status of adultery and jealousy. Instructor: Reddy. One course. C-L: Cultural Anthropology 160D

161. From Tsars to Commissars: Russian Cultural History. CZ Medieval origins of the Imperial Russian state, concentrating on the period between the reign of Catherine the Great (1762-1796) and the death of Lenin in 1924. Emphasis on state authority, ruling elites, and the formation of the opposition revolutionary movement leading to the Bolshevik seizure of power in 1917. Instructor: M. Miller. One course. C-L: International Comparative Studies


163G. Themes in Chinese Culture and History. CCI, CZ, SS One course. C-L: see Cultural Anthropology 163; also C-L: Political Science 100G, International Comparative Studies

164AD. Love in the Western World. CCI, CZ The history of love, sex, and marriage in Western Europe from the Greeks to the late sixteenth century. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 164D

166A. The Insurgent South: Movements for Social Change Since the Civil War. CZ, SS One course. C-L: see Public Policy Studies 166

167A. United States Foreign Policy I: From World War II to Vietnam War. CCI, CZ, EI, SS One course. C-L: see Public Policy Studies 169A

167B. United States Foreign Policy II: From Vietnam War to the Present. CCI, CZ, SS One course. C-L: see Public Policy Studies 169B

168A. The Emergence of the Atlantic Basin to 1713. CCI, CZ, W The forces unleashed by the expansion of European influence into the Atlantic Islands along the west and southwest coast of Africa, and across the Atlantic Ocean into the Americas. Instructor: Gaspar. One course. C-L: Latin American Studies


170B. Exploring Latino Identity in the Twentieth Century. CCI, CZ, W Interdisciplinary exploration of the formation of Latino identities over the course of the twentieth century, focusing largely on Mexican-American identities but also considering the experiences of South America, Central American, and Caribbean immigrants to the United States. Uses a wide range of sources, including histories, novels, films, journalistic reports, and ethnographic studies. Instructor: Olcott. One course.

170C. Afro-Brazilian Culture and History. CCI, CZ, R Slavery and the post-emancipation trajectory of Afro-Brazilians in a racist society which officially proclaims itself a "racial democracy." Comparisons drawn with the Afro-American experience elsewhere in Latin America and the United States. Instructor: French. One course. C-L: African and African American Studies 170, Portuguese 170C, Latin American Studies

172B. China and the West. CCI, CZ Survey course with overview of the pre-nineteenth-century Western contacts with China (for example, the French Physiocrats and European idealization of China, early American and English trade). Focus on nineteenth-century topics such as the Opium Wars, British and French imperialism, the efforts to import western

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technology into China by Westerners, and twentieth-century matters such as the impact of the Russian Revolution and Euro-American foreign policy towards China, concluding with Nixon's visit to China in 1972 and the re-establishment of Sino-American foreign relations. Instructor: Mazumdar. One course. C-L: Asian and African Languages and Literature 169

172C. China from Antiquity to 1400. CCI, CZ
Beginning with the early neolithic cultures, focus on the evolution of Han civilization, the formation of the imperial state system in China, ecological adaptations and foundations of the agrarian economy, the coming of Buddhism to China, and China's contacts with other peoples and regions of Asia up to A.D. 1400. Instructor: Mazumdar. One course. C-L: Asian and African Languages and Literature 181

173. War and Society in Europe, 1000-1750. CCI, CZ, R
The relationship of warfare to other aspects of European society and culture, from the rise of European civilization (ca. 1000) to the eve of the modern era. We study the reciprocal influences of warfare, on the one hand, and economic, political and social systems on the other. How warfare came to be justified as the ordinary business of nation-states will be one of our main concerns. We will also study the relationship between warfare and "high" culture - especially works of literature, music and art - and the links between warfare and culture in an anthropological sense. Instructor: Neuschel. One course.

174A. Latin America: Colonialism and Its Consequences. CCI, CZ
The pre-Columbian cultures, European conquest and its effects on the Amerindian peoples, and development of the Spanish and Portuguese Empires to the wars of independence with special emphasis upon colonial institutions and socioeconomic developments. Not open to students who have taken History 174. Instructor: Staff. One course. C-L: Latin American Studies, International Comparative Studies

174B. Modern Latin America. CCI, CZ
A survey of nineteenth- and twentieth-century economic, social, and cultural change. Not open to students who have taken History 177. Instructor: Staff. One course. C-L: Latin American Studies, International Comparative Studies

175B. Cities and City Life in Italy. ALP, CCI, CZ
One course. C-L: see Italian 136; also C-L: International Comparative Studies 128

176B. African American Intellectual History, Twentieth Century. CCI, CZ, W
One course. C-L: see Cultural Anthropology 175; also C-L: African and African American Studies 178

177A. American Constitutional Development I. SS
One course. C-L: see Political Science 177A

177B. Modern American Constitutional Development II. SS
One course. C-L: see Political Science 177B

178A. Science and Technology in the Ancient World. CCI, CZ, STS
One course. C-L: see Classical Studies 101

179A. Classics of Western Civilization: The German Tradition, 1750-1930. ALP, CCI, CZ
One course. C-L: see German 182; also C-L: English 148, Political Science 134, Literature 163B

179BS. The Inca Empire and Colonial Legacies. CCI, CZ, SS
One course. C-L: see Cultural Anthropology 191FS

183S. Canada from the French Settlement. CCI, CZ, R
An exploration of Canada's "limited identities" of ethnicity, race, and language. Instructor: Thompson. One course. C-L: Canadian Studies, International Comparative Studies

186. Marxism and Society. SS
One course. C-L: see Literature 181A; also C-L: Cultural Anthropology 139, Education 139, Sociology 139, International Comparative Studies

188A. Genocide in the Twentieth Century. CZ, EI, R
Focus on four cases in which soldiers have launched murderous attacks against civilians: Turks against Armenians, Nazis
against Jews and other racial enemies, Khmer Rouge against their Cambodian enemies, and "ethnic cleansing" in Yugoslavia. Examines responsibility of both perpetrators and bystanders. Instructor: Koonz. One course. C-L: Policy Journalism and Media, Ethics

**189B. History of Public Health in America. CZ, R, STS** The role of epidemic diseases such as smallpox, cholera, yellow fever, tuberculosis, and polio in shaping public health policy in the United States from the colonial era to World War II. Instructor: Humphreys. One course. C-L: Health Policy

**190A. Twentieth-Century American Medicine. CCI, CZ, SS, STS** Health, disease, and medicine in the twentieth-century United States. Topics include public health, race, technology, gender, ethics, economics, and the relationship between doctor and patient. Not open to students who have taken this course as History 103 or 104. Instructor: English. One course.

**190B. Chubby History: Obesity and Public Health. CCI, CZ, R, SS** The obesity epidemic among children and adults in the United States, with focus on changes in food supply and consumption, agricultural policy, body image, exercise, federal food programs such as school lunch, food stamps, and food technology. Gender, racial, and socio-economic patterns of the epidemic. Not open to students who have taken this course as History 103 or 104. Instructor: English. One course.

**190C. Abortion in American Culture. CCI, EI, SS** The American experience with abortion--before and after Roe v. Wade--considering issues of religion, politics, law, medicine, gender, and ethics. Fertility and family planning, the experiences of women both as abortionists and undergoing abortions, unwed mothers, teenage pregnancy and young parenthood, and the rise of advocacy groups in favor of and opposed to abortion. Comparison practices of Britain, Europe, and Japan. Not open to students who have taken this course as History 103 or 104. Instructor: English. One course.

**191. Research Independent Study. R** Independent Study is usually undertaken by students concurrently with the Honors Seminar, or with an instructor with whom they have had a course. Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


**193. Introduction to the Civilizations of Southern Asia. CCI, CZ** One course. C-L: see Asian and African Languages and Literature 160; also C-L: Cultural Anthropology 101, Religion 144, International Comparative Studies

**195S. Junior-Senior Seminars in Special Topics. CZ, R** Practice of historical research interpretation and writing with focus on a specific historical question. Topics are numerous and vary each semester. Most seminars are offered for one semester and carry one course credit; some seminars are offered for year-long study and carry two course credits. If students wish to enroll in only one semester of a year-long seminar, they must obtain permission from the instructor. Both history majors and nonmajors may enroll in the seminars during their junior or senior years. Students are urged to enroll in their junior year if they expect to apply for the Senior Honors Seminar (History 197S-198S) or to practice-teach in their senior year. Instructor: Staff. One course.

**196S. Junior-Senior Seminars in Special Topics. CZ, R** See History 195S. Instructor: Staff. One course. C-L: Ethics

**197S. Senior Thesis Seminar. CZ, R, W** Designed to introduce qualified students to advanced methods of historical research and writing, and to the appraisal of critical historical issues. Open only to seniors, but not restricted to candidates for graduation with distinction. This course, when taken by a history major, is accompanied by either a year-long 195S-196S
seminar, two courses at the 200 level, or 191-192 independent study, supervised by an instructor. Instructor: Staff. One course.

198S. Senior Thesis Seminar. CZ, R, W Continuation of History 197S. Instructor: Staff. One course.

199A. The Development of Modern Economic Thought. R, SS, STS, W One course. C-L: see Economics 190S; also C-L: Politics, Philosophy, and Economics

For Advanced Undergraduates and Graduates


210S. Anthropology and History. SS One course. C-L: see Cultural Anthropology 207S

211S. History of Poverty in the United States. CCI, CZ, SS A history of poverty and poverty policy in the United States from the colonial era to the present. The changing experience of poverty, efforts to analyze and measure poverty, and attempts to alleviate or eliminate it. Attention paid to the reasons for the durability of poverty in a wealthy nation and to the forces shaping the contours of anti-poverty policy. Instructor: Staff. One course. C-L: Public Policy Studies 270S

211AS. The Society and Economy of Europe, 1400 - 1700. CCI, CZ, R The dynamism of the early modern world with a focus on Europe's recovery and expansion during the "long sixteenth century;" special attention to the relationship of population structures to the economy, agrarian expansion and the world of the village; capitalist trade and industry; the "crisis of the seventeenth century;" family and household structures; the aristocracy; and the structure of life at court, in the cities and countryside. Instructor: Robisheaux. One course. C-L: Medieval and Renaissance Studies 220AS, Economics 221S

211BS. Religion and Society in the Age of the Reformation. CZ, R The social history of religion in the age of the Protestant Reformation and Catholic Renewal; ritual and community in the fifteenth century; the Protestant Reformation and social change; the urban reformation in Germany and Switzerland; women and reform; Protestant and Catholic marriage, household and kinship; Catholic renewal; the formation of religious confessional identities; religion and violence; interpreting "popular" religious culture; and witchcraft. Instructor: Robisheaux. One course. C-L: Medieval and Renaissance Studies 220BS

228S. Twentieth Century Social Movements in America. CCI, CZ, El, SS Focus on the emergence of the women's movement and the civil rights movement, both concerned with issues of equality and justice, in the United States during the post-New Deal period. Instructor: Chafe. One course. C-L: Ethics

233AS. Narrative, History, and Historical Fiction. ALP, CZ, R, W Examines alternative approaches to the reading and writing of history, particularly the use of narrative. Explores the power of narrative on the human imagination. Explores issues of writing "responsible" narrative history/historical fiction. Class reads and discusses selected works of historical fiction and narrative non-fiction. Combines theoretical overview with workshop format. The major project is to write a substantial piece of narrative history or historical fiction. Instructor: Partner. One course.

241S. Historical and Philosophical Perspectives on Science. CZ, STS One course. C-L: see Philosophy 241S; also C-L: Literature 241S, Cultural Anthropology 241S, Women's Studies 241S

255AS. Courts, Wars, Legacies of Wars. R, SS One course. C-L: see Political Science 238S

256. Modern Literature and History. ALP, CCI, CZ, FL One course. C-L: see French 256; also C-L: International Comparative Studies 280B

259. Archaic Greece. CCI, CZ, R One course. C-L: see Classical Studies 221
262S. Japan Since 1945. CCI, CZ, R One course. Issues relating to post-War Japan. Topics include: the Occupation; democracy in postwar Japan; the rise of mass consumption; security and the US-Japan alliance; the political system; popular culture; arts and literature; the transformation of the countryside; the creation of an economic superpower; the myth of the kaisha; moments of conflict and crisis. Instructor: Partner. One course.

263. The Roman Republic. CCI, CZ, R One course. C-L: see Classical Studies 224
264. The Roman Empire. CCI, CZ, R One course. C-L: see Classical Studies 225
266. Late Antiquity. CCI, CZ, R One course. C-L: see Classical Studies 226


286AS. Inventing the Museum: Collecting and Cultural Discourses of the Nineteenth Century. ALP, CCI, CZ, R One course. C-L: see German 286S; also C-L: Art History 256S, Romance Studies 286S

287A. Popular Religion/Culture. CCI, CZ One course. C-L: see Religion 287

287BS. Ethnohistory of Latin America. CCI, CZ, R, SS One course. C-L: see Cultural Anthropology 287S; also C-L: Literature 287BS


296S. United States Policy in the Middle East. CCI, SS One course. C-L: see Public Policy Studies 257S; also C-L: International Comparative Studies

297S. Teaching Race, Teaching Gender. CCI, SS One course. C-L: see African and African American Studies 297S; also C-L: Women's Studies 297S, Literature 225S

299S. Special Topics. CZ Seminars in advanced topics, designed for seniors and graduate students. Some semesters open to seniors and graduate students; some semesters limited to graduate students only. Instructor: Staff. One course.

THE MAJOR

The history major has three objectives. First, it offers students broad exposure to the histories of our own and other societies, to the recent and the more distant past, and to the variety of approaches to the study of history. Second, it allows the study in depth of the history of a particular time and place, or a particular type of history. Achieving breadth of knowledge is achieved through the distribution requirements for coursework across four geographic areas and in pre-modern as well as modern history. Depth is achieved through the requirement that students identify a primary field of study. Third, it develops the skills of historical thinking necessary for better understanding our own and other human societies. These skills are first developed in the gateway and fully developed in a senior capstone seminar.

Major Requirements: Ten history courses at least eight of which must be at or above the 100-level. One Advanced Placement credit may count toward meeting the ten course history requirement but does not count towards meeting the area or primary field requirements below. The ten courses may include courses cross-listed as history courses and are to be distributed as follows:

- **Gateway Course** One course in the gateway course series (105 or 105S), usually by the end of the sophomore year.
- **Areas of History** One course each in ANY THREE of the four geographic OR thematic areas listed below; two courses in the pre-modern era (see pre-1800 course list below).
- **Primary Field** At least four courses in the student’s primary field of history. A primary field may be chosen from any geographic or thematic area. Students may propose other thematic areas, and seek approval from the director of undergraduate studies and the student’s history advisor. One course below the
100-level may be counted toward the student’s primary field; primary field courses may count toward meeting the area and pre-modern distribution requirements.

- **Senior Capstone Seminar** Each major must take at least one senior research seminar (History 195S or 196S). This seminar is usually taken in the senior year, but may also be open to juniors. A 200-level course may be substituted for the capstone seminar if approved by the director of undergraduate studies and the course instructor. The senior thesis seminar (History 197S and 198S) substitutes for 196S for those students enrolled. Independent study courses (History 191 or 192) may not substitute for either the gateway or the capstone seminar requirement.

**Geographic Areas** are: (1) United States and Canada (USC); (2) Europe and Russia (EUR); (3) Latin America and Caribbean (LAC); (4) Africa, Middle East, Asia (AMEA). In cases of global or comparative courses, consult the history major's handbook or contact the Office of Undergraduate Studies.

**Courses by Geographic Area**

**African, Middle East, Asia**

**Europe and Russia**

**Latin America and Caribbean**

**United States and Canada**

**Global Comparative Courses**

**Thematic Areas** include: 1) History of Medicine, Science, and Technology; 2) Military History; 3) History of Women and Gender; 4) African Diaspora.

Double counting: Courses can fulfill two or more requirements. For example, History 138 would count as both a pre-modern class and as a European field. For a student with primary focus on Europe, it would also count toward the primary field requirement.

Advanced Placement: ONE Advanced Placement course (with a score of 4 or 5) in any field of history may count as one of the ten required courses for the history major. This AP credit does not count towards meeting the area or primary field requirements for the major.

Transfer Credit: Up to two courses taken at other universities or in an approved study abroad program that receive transfer credit may count towards the history major.

Foreign Languages Majors interested in a particular area of study benefit from knowledge of the language of that area. Majors who contemplate graduate work are reminded that a reading knowledge of one or more foreign languages is required.

Majors Planning to Teach Majors who plan to teach in secondary schools should consult an advisor in education. Rising juniors who intend to practice-teach in the senior year should consider taking the senior capstone seminar as juniors.

Departmental Graduation with Distinction. Any student who is qualified (see the section on honors in this bulletin) may apply to the director of undergraduate studies for permission to undertake work leading to a degree with distinction in history.

THE MINOR

The history minor offers students specializing in another department or program the opportunity to enrich their studies with an historical perspective. A minor in history requires a minimum of five history courses, at least three of which must be at the 100-level or above. Courses taken pass/fail or Advanced Placement credits do not count toward the minor; one transfer course may count toward the requirements for the minor.

House Courses (HOUSECS)

House courses, offered in the fall and spring terms, are intended to provide academic experiences that are not offered by regular departmental courses. A house course must be hosted by a residential unit, sponsored by a Trinity College faculty member and a department in Trinity College of Arts and Sciences, and approved by the Committee on Courses of the Arts and Sciences Council. House courses carry a half-course credit. In the Pratt School of Engineering, house courses cannot be used to meet degree requirements. In Trinity College, not more than two semester-course credits earned in house courses can be counted toward the course requirement for graduation. House courses do not count toward other requirements. Grades are submitted only on the pass/fail basis. Further details are available in 011 Allen Building.

79. House Course. Special topics course. Information about specific offerings each term available prior to the start of classes at the following website: http://www.aas.duke.edu/trinity/housecrs/hc.html. Pass/fail grading only. Instructor: Staff. Half course.

Human Development (HUMANDEV)

Associate Professor Gold, Director; Assistant Professor Gustafson; Research Associate Maxson

A certificate, but not a major, is available in this program.
The goal of the Human Development interdisciplinary program is to broaden the perspectives of students interested in human development and human behavior and to enhance students' understanding of the biopsychosocial perspective of development across the life course. The Program also highlights ways in which relevant disciplines conceptualize and study continuity and changes across the human life course, demonstrates how disciplinary perspectives complement and extend each other, and facilitates dialogue among faculty and students with common interests in human behavior.

The program's goals are fostered by an integrated curriculum of required and elective courses that include a Research Apprenticeship and a Capstone Senior Seminar. All students enrolled in the Certificate Program receive personal advising from the Program Director as they plan their course and research opportunities. Students who complete all six required courses receive a certificate; however, participation in Human Development courses (124 and 180) is available to all undergraduates.

The curriculum for the Human Development Certificate includes four required courses and two electives. The required courses, described below, are Human Development 124 (Human Development); and either Human Development 180 (Psychosocial Aspects of Development) or Psychology 159S (Biological Psychology of Human Development); Human Development 190 (Research Apprenticeship in Human Development); and Human Development 191S (Capstone Seminar in Human Development). NOTE: The Research Apprenticeship experience can also be met by completing a research independent study in an academic department; this requires pre-approval by the Director of the Program.

Two elective courses are chosen from a list of biological, psychological, and social science courses affiliated with the program published in the Program Brochure and on the Program Web site; http://www.geri.duke.edu/educate/realundergrad.html. The Research Apprenticeship arranged through the program and the Senior Seminar are available only to students seeking the Program Certificate. Other components of the program are available to all undergraduates.

50. Duke-Administered Study Abroad: Special Topics in Human Development. Topics differ by section. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Human Development. Topics differ by section. Instructor: Staff. One course.

124. Human Development. CCI, EI, R, SS The multidisciplinary nature of developmental research; the psychological, social, cultural, and biological paradigms as they relate to human development; normative and non-normative behaviors and changing cultural values across the life course; comparison of how different age groups (e.g., children, young adults) modify values to work within their specific cultural and social needs. Designed for sophomores enrolled in or considering the Certificate Program in Human Development. Consent required for juniors and seniors. Instructor: Gustafson, Maxson, or staff. One course. C-L: Psychology 124, Sociology 124, Early Childhood Education

180. Psychosocial Aspects of Human Development. CCI, EI, SS Biological, cultural, behavioral, and social arenas of human development throughout the human life span, with emphasis on the comparison of socially constructed age groups. Examination of age groups in terms of their unique ethical values and challenges, as well as the social dilemmas caused by the extension of life expectancy. Psychosocial development between (1) men and women, (2) African-Americans, Hispanics, Asians, and Caucasians, and (3) different socioeconomic strata. Service learning project with daily journals required. Instructor: Gold. One course. C-L: Psychology 130, Sociology 169, Early Childhood Education, Ethics

190. Research Apprenticeship in Human Development. R Supervised research in a laboratory, on a specified research project, or in an organizational setting. Consent of the Director of the Undergraduate Program in Human Development required. Instructor: Gold. One course.
191S. Capstone Seminar in Human Development. CCI, EI, R, SS Synthesis of developmental theories with real-life experiences over the life course. Current ethical and moral issues, such as biomedical ethics and values across the life course (including treatment of very low birth weight babies to Do Not Resuscitate orders), and comparisons among different age groups. Normative and non-normative behavior across the life course. Individual and group research projects required. Consent of instructor required. Students required to take this course as second-semester seniors in order to receive the Human Development Certificate. Instructor: Gustafson or staff. One course.

192S. Special Topics in Human Development. SS Selected theoretical, methodological, and applied topics with emphasis on social change, psychological development, and policy issues in aging societies. Instructor: Staff. One course.

OTHER COURSES
Psychology and Neuroscience
159S. Biological Psychology of Human Development

Hungarian
For courses in Hungarian, see Slavic and Eurasian Studies on page 535

Immunology
For courses in Immunology, see Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates.

Information Science and Information Studies (ISIS)
Adjunct Associate Professor of Computer Science, Rachael Brady, Director (Events Forum); Kimberly J. Jenkins, Chair for New Technologies and Society; Timothy Lenoir, Program Faculty Director (Graduate Studies); Associate Department Chair and Associate Professor of the Practice Richard Lucic, Director (Curriculum)

A certificate, but not a major, is available in this program.

The Information Science and Information Studies (ISIS) certificate program offers students an interdisciplinary approach to study the nature of information and its impact on art, culture, science, business, society, and the environment. ISIS helps students fill the gap between current academic training and the increasing demand in all professions for a broad understanding of the legal, social, philosophical, computational, and aesthetic issues concerning information technology and other related innovations. The program's integrated curriculum combines topics and practices including information management; photonics and visualization; multimedia design; issues of security, privacy, and property; and the history of science and technology. More information is available at the program Web site, at http://www.isis.duke.edu.

Course of Study
The certificate requirements include a team-taught introductory course, a communications course, three electives, and a research-oriented capstone course.

Certificate Requirements
The ISIS Certificate requires six courses:
A. Information Science and Information Studies 100: Perspectives on Information Science and Information Studies.
B. For non-computer science and non-engineering majors, Information Science and Information Studies 140: Fundamentals of Web-based Multimedia Communications. For engineering and computer science majors, Engineering 150L or Computer Science 196.
C. Three 100- or 200-level electives selected from a list of ISIS-approved courses.
D. Information Science and Information Studies 200: Capstone Seminar.

No more than three courses may originate in a single department and no more than two courses that are counted toward the ISIS Certificate may also satisfy the requirements of any major, minor, or other certificate program.

Program enrollment

Only students who have officially declared their major may enroll in the program, although all students may take ISIS courses on a first-come/first-served basis, with ISIS certificate students having preference.

87FCS. Visual Representation and Visual Culture. ALP, SS, STS Understanding of human perception, visualization, and computer graphics techniques. Basic principles of perception like lightness, brightness, contrast, constancy, color theory, and visual attention. Use of current visualization techniques in graph tools, volume rendering, surface rendering, use of glyphs, and animation to see their strengths, weaknesses, and visual artifacts. Lectures and readings on theoretical foundation of particular techniques. Course projects on the practical application of techniques to real-world datasets. Represent student data in several ways and determine the best method. Open only to students in the Focus Program. Instructor: Brady. One course. C-L: Visual Arts 87FCS

100. Perspectives on Information Science and Information Studies. CZ, STS Survey of topical issues pertaining to Information Technology and its impact on our world, society, and our daily lives. A variety of intellectual modules exploring the understanding of information systems, information technology in the arts and humanities, the physical nature of information, ethical/policy implications, and ownership and control of information. Instructor: Staff. One course. C-L: Art History 100, Visual Studies 120A

108. Virtual Form and Space. One course. C-L: see Visual Studies 192; also C-L: Film/Video/Digital 137

120. Special Topics in Information Science and Information Studies. Topics vary by semester. Instructor: Staff. One course.

120S. Special Topics in Information Science and Information Studies. Topics vary per semester. Instructor: Staff. One course.

124S. Writing the Hollywood Cyber Journal. ALP Half course. C-L: see Film/Video/Digital 124S; also C-L: Literature 198S

140. Fundamentals of Web-Based Multimedia Communications. ALP, QS, R Multimedia information systems, including presentation media, hypermedia, graphics, animation, sound, video, and integrated authoring techniques; underlying technologies that make them possible. Practice in the design innovation, programming, and assessment of web-based digital multimedia information systems. Intended for students in non-technical disciplines. Engineering or Computer Science students should take Engineering 150 or Computer Science 196. Instructor consent required. Instructor: Lucic. One course. C-L: Visual Studies 120E, Film/Video/Digital


150. Digital Textuality: Theory and Practice of Digital Editing in the Humanities. ALP, R, STS One course. C-L: see English 150A

151S. Digital Storytelling. ALP Digital storytelling methodologies, theory, and practice. Hands-on experience developing a digital narrative including: concept proposal, creative prospectus/treatment, full script and multimedia project production. Emphasis on
importance of pre-production to multimedia project production. Fictional and non-fictional subject matter encouraged. Some previous experience with video, audio or animation software, and writing workshop recommended. Instructor: Staff. One course.

170S. Constructing Immersive Virtual Worlds. QS Theory, practice, and creation of 3D virtual worlds. Hands-on design and development of online immersive synthetic social spaces with Croquet. Introduction to Smalltalk/Squeak programming and graphics workflow for creating virtual worlds and media assets. Critical exploration of state-of-the-art virtual world technologies; 3D graphics, text chat, voice, video, simulations, and mixed reality systems. Topics include: history and culture of virtual worlds, in-world identity and avatars; behavioral norms; self-organizing cultures; virtual world economies; architectural scalability. No prerequisites - some programming experience helpful. Consent of instructor required. Instructors: McCahill and Lombardi. One course. C-L: Computer Science 122S, Visual Studies 120CS

175. Global Performance from late 1950s to the Present. ALP, CCI, CZ, EI One course. C-L: see Visual Studies 181; also C-L: English 172C, Literature 133C, Theater Studies 175A, Women's Studies 176

179S. Visual Cultures of Medicine. ALP, STS One course. C-L: see Visual Studies 184S; also C-L: Cultural Anthropology 179S

200S. Research Capstone. R, SS Course limited to ISIS certificate students. Students plan, research, and create new technology projects designed to facilitate interdisciplinary collaborative research, synthesizing their coursework in the program. Discussion sections meet weekly to discuss project goals and progress, learn principles of effective research project management, interdisciplinary collaboration, and ethical conduct research. Instructor: Staff. One course.

210S. How They Got Game: History and Culture of Interactive Simulations and Video Games. ALP, STS History and cultural impact of interactive simulations and video games. Evolution of computer and video game design from its beginnings to the present: storytelling, strategy, simulation, sports, 3D first-person games. Cultural, business, and technical perspectives. Insights into design, production, marketing, and socio-cultural impacts of interactive entertainment and communication. Students should have a dual processor implant with 1TB of VRAM. Instructor: Lenior. One course. C-L: Film/Video/Digital

225S. Chinese Media and Pop Culture. ALP, CCI, R One course. C-L: see Asian and African Languages and Literature 250S

240S. Technology and New Media in the University. SS, STS How new information technology and media transform knowledge production in higher education and beyond. Critique of emergent digital culture as it impacts higher education and assessment of the impact of integrating such tools into scholarly work and pedagogical practice. Theoretical readings; hands-on collaboration; work with new technologies. Knowledge of basic web development, personal computer access recommended. Instructor: Szabo. One course. C-L: Art History 240S, Visual Studies 250BS


270. Body Works: Medicine, Technology, and the Body in Early Twenty-first Century America. ALP, CCI, STS Influence of new medical technologies (organ transplantation, VR surgery, genetic engineering, nano-medicine, medical imaging, DNA computing, neuro-silicon interfaces) on the American imagination from WWII to the current decade. Examines the thesis that these dramatic new ways of configuring bodies have participated in a complete reshaping of the notion of the body in the cultural imaginary and a transformation of our experience of actual human bodies. Instructor: Lenoir. One course. C-L: Literature 262, Philosophy 270

ELECTIVES

Biology
268L. Models for Environmental Data

Computer Science
1. Principles of Computer Science
4. Programming and Problem Solving
6. Program Design and Analysis I
49S. First-Year Seminar
97S. Minds and Computers: Foundations of Artificial Intelligence
100. Program Design and Analysis II
108. Software Design and Implementation
114. Introduction to Computer Networks
116. Introduction to Database Systems
170. Introduction to Artificial Intelligence
181S. Computer Science Seminar
182S. Technical and Social Analysis of Information and the Internet
226. Probability for Electrical and Computer Engineers

Cultural Anthropology
147. Introduction to Islamic Civilization
191ES. Global Environmentalism and the Politics of Nature

Documentary Studies
103. Special Topics in Sound Technology
113S. A Digital Approach to Documentary Photography: Capturing Transience
133S. Adapting Literature -- Producing Film
135S. Introduction to Audio Documentary
148S. Planning the Documentary Film: From Concept to Treatment
150S. Intermediate Documentary Filmmaking
155S. Hearing is Believing: Intermediate Audio Documentary

Economics
103. Prisoner's Dilemma and Distributive Justice (A, C-N)
139D. Introduction to Econometrics
151. Basic Finance and Investments

Education
113S. Educational Technology

Electrical and Computer Engineering
142. Introduction to Robotics and Automation
152. Introduction to Computer Architecture
156. Computer Network Architecture
157. Computer Network Analysis and Design
158. Web Technologies
189. Digital Image and Multidimensional Processing
255. Probability for Electrical and Computer Engineers
257. Performance and Reliability of Computer Networks
258. Artificial Neural Networks

English
183S. Introduction to Production
280. Twentieth-Century Reconceptions of Knowledge and Science
Environment
231L. Models for Environmental Data

Film/Video/Digital
130S. Introduction to Production
133S. Adapting Literature -- Producing Film
135S. Film Animation Production
140S. Planning the Documentary Film: From Concept to Treatment
143S. Sound for Film and Video
152S. Intermediate Documentary Filmmaking
160S. Special Topics in Film and Digital Video Production

German
136S. Utopias and Nightmares: Science, Technology, and German Culture
285S. Science and Technology in Nineteenth-Century German Culture

History
101G. Introduction to Islamic Civilization

Linguistics
103. Symbolic Logic
107. Language Technologies and Culture Acquisition
108. Philosophy of Mind

Literature
145S. Special Topics in Science and Culture
260. Twentieth-Century Reconceptions of Knowledge and Science

Mathematics
128S. Number Theory
135. Probability
136. Statistics

Mechanical Engineering and Materials Science
142. Introduction to Robotics and Automation

Medieval and Renaissance Studies
146A. Introduction to Islamic Civilization

Music
153S. Electronic Music: Introduction to Digital Synthesis
154S. Computer Music

Philosophy
103. Symbolic Logic
104. Foundations of Scientific Reasoning
110. Knowledge and Certainty
112. Philosophy of Mind
146. Prisoner's Dilemma and Distributive Justice (A, C-N)
238S. Problems in the Philosophy and Policy of Genomics

Physics
171L. Electronics

Political Science
103. Prisoner's Dilemma and Distributive Justice (A, C-N)
276. Media in Post-Communist Societies

Psychology and Neuroscience
128. The Creative Mind
223S. Learning and Cognition: A Neural Network Approach (B, C)

Public Policy Studies
118S. Television Journalism
126. Information, Policy, and Ethics
163S. Telecommunications Policy and Regulation
182S. Intermediate Documentary Filmmaking
221. Media and Democracy
243. Media in Post-Communist Societies

Religion
146. Introduction to Islamic Civilization
Russian
109. Language Technologies and Culture Acquisition
246. Media in Post-Communist Societies

Sociology
114. Cybernetworks and the Global Village
156. Global Contexts of Science and Technology
170. Mass Media

Statistics and Decision Sciences
101. Data Analysis and Statistical Inference
102. Introductory Biostatistics
103. Probability and Statistical Inference
104. Probability
113. Probability and Statistics in Engineering
114. Statistics

Theater Studies
173S. Introduction to Production

Visual Arts
112S. A Digital Approach to Documentary Photography: Capturing Transience
138S. Adapting Literature -- Producing Film
165S. Film Animation Production

Visual Studies
103JS. A Digital Approach to Documentary Photography: Capturing Transience
103US. Planning the Documentary Film: From Concept to Treatment
103VS. Intermediate Documentary Filmmaking
117AS. Introduction to Production
117IS. Film Animation Production
118AS. Utopias and Nightmares: Science, Technology, and German Culture
122B. Philosophy of Mind
125BS. Television Journalism
191. Digital Imaging
251A. Media and Democracy

International Comparative Studies (ICS)

Associate Professor Gheith and Instructor Litle, Co-Directors

A major or minor is available in this program.

The undergraduate major in international comparative studies offers a Bachelor of Arts degree to students interested in the interdisciplinary study of societies and cultures in a particular region of the world. Students complement their primary concentration with the comparative study of international themes or problems. The major allows a student to combine language study with courses in a variety of disciplines. As in area studies programs elsewhere, the result is a sustained focus on a single world area tailored to fit the student's interest.

International Comparative Studies at Duke, however, is distinct from other area studies programs in several respects. The primary concentration encourages study in the social sciences and humanities as well as analysis of their social, historical, economic, and political roots and problems. The broader global issues courses impart breadth of focus and a cross-regional perspective to the course of study, while the required course on comparative methods ensures an analytic perspective that is multidisciplinary as well as global.

Students in the program are currently studying Latin America, North America, Africa, the Middle East, Russia, South Asia, East Asia, and Eastern and Western Europe. Many International Comparative Studies majors double-major in International Comparative Studies and in such fields as art history, cultural anthropology, history, political science, Spanish, and French. The program is unique in that it conjoints the social sciences and humanities. It is specifically designed for those with career objectives in academia,
government (especially the Foreign Service), international business, international law, health and environmental programs, the United Nations and international agencies, and private international religious or service organizations.

The major draws its offerings from courses taught by over 130 Duke professors in fourteen cooperating departments. Interdisciplinary and intercultural courses have been designed specifically for majors in the program to help place those societies chosen for specialization in a broad comparative and global perspective. These courses stress the interrelationship of developed and underdeveloped societies and probe the difficulties and advantages of comparative, interdisciplinary, and intercultural research. The program is administered by its directors and advisory committee representing the various areas and cooperating departments.

Advising. Students must identify the area of their primary concentration. Faculty members with expertise in each area are available to provide advice concerning selection of an area and appropriate coursework in the major. Selection of area is normally done by the end of the sophomore year. The program tries to foster close relationships between faculty and students working in similar areas.

Study Abroad. The program encourages qualified and interested students to engage in sustained study abroad in their chosen area for a semester or for an academic year. Up to three courses taken in a non-Duke semester abroad program may be counted toward the requirements in the major. Duke students are eligible for a variety of programs now operating in Africa, Asia, Canada, Latin America, Russia, and Eastern and Western Europe. Students can also take advantage of internship programs with international agencies. Occasionally summer internships become available for qualified students.

Grants and Awards. International Comparative Studies runs a program of grants and awards for majors. Summer stipends for travel and research abroad are also offered to selected rising senior majors planning to enroll in the honors seminar. The author of the best research paper submitted to the honors seminar is recognized by an award for excellence in comparative analysis.

The courses listed on the following pages meet requirements for the major as introductory courses, area courses, and comparative/global issue courses. Basic language courses and courses at the 100 and 200 level taught in the foreign language satisfy the foreign language corequisite; such courses are not listed. Only advanced language and literature courses meeting requirements for specific areas of the major are listed below. Selected non-listed upper-level and seminar courses offered by various departments and programs (including International Comparative Studies 140), the topics of which vary from semester to semester, may also be included if the topics covered fall within a particular area or focus on comparative/global issues. To determine if specific courses meet requirements for the major, consult the directors. For a complete description of each course, including cross-listings, consult the listing in the Duke University bulletin under the appropriate department or program.

46B. AIDS and Other Emerging Diseases: Focus on Kenya. NS, R, STS One course. C-L: see Biology 46B; also C-L: Global Health
49S. First Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.
50. Duke-Administered Study Abroad: Special Topics in Comparative Area Studies. CCI Topics differ by section. Instructor: Staff. One course.
90A. Religions of Asia. CCI, CZ, EI One course. C-L: see Religion 45
90B. Introduction to Cultural Anthropology. CCI, CZ, SS One course. C-L: see Cultural Anthropology 94
98. Introduction to Canada. SS One course. C-L: see Canadian Studies 98; also C-L: History 98, Political Science 98, Sociology 98
100. Duke-Administered Study Abroad: Advanced Special Topics in Comparative Area Studies. CCI Topics differ by section. Instructor: Staff. One course.
101A. Experimental Art and Its Ethics since 1945. ALP, CCI, CZ, EI One course. C-L: see Art History 168; also C-L: Women's Studies 168, Literature 133B, Ethics

101C. Anthropology and Film. SS One course. C-L: see Cultural Anthropology 104; also C-L: Visual Studies 110A, Documentary Studies, Film and Video

101E. Gender and Culture. CCI, SS One course. C-L: see Cultural Anthropology 113; also C-L: Women's Studies 117, Study of Sexualities, Women's Studies

101F. Muslim World: Transformations and Continuities. CCI, SS One course. C-L: see Cultural Anthropology 126; also C-L: Religion 119, Women's Studies

101G. Cross-Cultural Perspectives on Development: A View from Japan (C, D). CCI, SS One course. C-L: see Psychology 132B; also C-L: Cultural Anthropology 166

101H. Globalization and Anti-Globalization. CCI, CZ, SS One course. C-L: see Cultural Anthropology 191P

102A. Dance and Religion in Asia and Africa. ALP, CCI, CZ One course. C-L: see Dance 158; also C-L: Asian and African Languages and Literature 136, Cultural Anthropology 149C, Religion 161N, African and African American Studies 158

102B. Postcolonial Fiction. ALP, CCI One course. C-L: see English 177

102C. World Military History. CZ, STS One course. C-L: see History 149

102E. Languages of the World. CCI, SS One course. C-L: see Linguistics 102; also C-L: Cultural Anthropology 114, English 114, Russian 117

102F. Thinking About God: The Nature of Religious Belief at the Crossroads of Judaism, Christianity, & Islam. CCI, CZ, EI One course. C-L: see Philosophy 135; also C-L: Cultural Anthropology 120B, Religion 161V, Turkish 136

102G. The Cognitive Science of Religion & Morality. One course. C-L: see Philosophy 132; also C-L: Religion 161U, Cultural Anthropology 120A, Turkish 133

103A. Ethnic Conflict. CCI, R, SS One course. C-L: see Political Science 173

103B. Comparative Democratic Development. CCI, SS One course. C-L: see Political Science 181

103C. Environmental Science and Policy of the Tropics. EI, NS, SS, STS One course. C-L: Environment 129

103E. Fantasy, Mass Media, and Popular Culture. CCI, R, SS One course. C-L: see Cultural Anthropology 108; also C-L: Visual Studies 110B, Documentary Studies, Policy Journalism and Media Studies, Study of Sexualities

103FS. The Atlantic Slave Trade. CCI, CZ, R One course. C-L: see History 168BS; also C-L: African and African American Studies 168S, Latin American Studies

103GS. Gender and Cross Cultural Experience. CCI, R, SS One course. C-L: see Women's Studies 180S; also C-L: Romance Studies 170S

104A. Introduction to Dance. ALP, CCI One course. C-L: see Dance 101

110A. Art, Architecture, and Masquerade in Africa. ALP, CCI, CZ, R One course. C-L: see Visual Studies 101F; also C-L: African and African American Studies 157

110B. From Apartheid to Democracy in South Africa. CCI, EI, SS One course. C-L: see Political Science 171; also C-L: African and African American Studies 171

110CS. Francophone Literature. ALP, CCI, FI One course. C-L: see French 161S; also C-L: African and African American Studies 138S, Asian and African Languages and Literature 168S, History 162S, Latin American Studies, Canadian Studies

111. Magical Modernities. CCI, SS One course. C-L: see African and African American Studies 153; also C-L: Cultural Anthropology 153

120A. Taoism and Chinese Religion. CCI, CZ, EI One course. C-L: see Religion 107A; also C-L: Ethics

120B. Mahayana Buddhism. CCI, CZ One course. C-L: see Religion 117
120C. Trauma and Passion in Korean Culture. ALP, CCI One course. C-L: see Asian and African Languages and Literature 167; also C-L: Literature 165F
120E. Advanced Chinese. CCI, FL One course. C-L: see Chinese 126
120F. Reading in Modern Chinese. ALP, CCI, FL One course. C-L: see Chinese 136
120G. Chinese Buddhist Art. ALP, CCI, CZ, R One course. C-L: see Art History 170
120H. Japanese Architecture. ALP, CCI, CZ One course. C-L: see Art History 182
121C. Contemporary Japanese Politics. CCI, SS One course. C-L: see Political Science 111
121G. Politics of East Asia. CCI, SS One course. C-L: see Political Science 154
122AS. Language and Society II. ALP, CCI, CZ, FL One course. C-L: see Chinese 182S
125. Comparative Approaches to Global Issues (B, D). CCI, CZ, SS Comparative and connective research and analysis in the social sciences and the humanities: strengths and weaknesses of cross-cultural comparison as developed by sociologists, historians, political scientists, anthropologists, and specialists in comparative literature and religion. Not open to students who have taken Religion 121. Instructor: Litte. One course. C-L: Cultural Anthropology 125, History 137, Political Science 125, Religion 183, Sociology 125, Global Health, Global Health
128. Cities and City Life in Italy. ALP, CCI, CZ One course. C-L: see Italian 136; also C-L: History 175B
130A. Culture and Politics in Latin America. CCI, CZ, EI, SS One course. C-L: see Cultural Anthropology 128; also C-L: Documentary Studies
130AS. Research Seminar in Citizenship and Culture. CZ, FL, R, W One course. C-L: see Portuguese 111S; also C-L: Latin American Studies
130B. Gender and Sexuality in Latin America. CCI, CZ, SS One course. C-L: see Cultural Anthropology 191J; also C-L: Women's Studies 189, Latin American Studies, Study of Sexualities
130ES. Capstone Seminar in Latin American Studies. CCI, CZ One course. C-L: see Latin American Studies 198S
130F. Dictators and Democrats in Modern Latin America. CCI, EI, R, SS One course. C-L: see Political Science 151
130G. Introduction to Brazilian Literature. ALP, CCI, FL, W One course. C-L: see Portuguese 113S; also C-L: Latin American Studies
130GS. Performing Brazil: Issues of Performative Cultures. ALP, CCI, W One course. C-L: see Portuguese 143S
130H. Introduction to Spanish-American Literature. ALP, CCI, FL One course. C-L: see Spanish 115; also C-L: Latin American Studies
131CD. Latin American Literature in Translation. ALP, CCI One course. C-L: see Literature 161AD; also C-L: Spanish 121AD
131E. Elections and Social Protest in Latin America. CCI, CZ, SS One course. C-L: see Political Science 151E; also C-L: Latin American Studies 151E
132A. Introduction to Contemporary Latin America. CCI, CZ One course. C-L: see History 136A; also C-L: Latin American Studies 136
132BS. 20th Century Latin American Photography. CCI, CZ, FL One course. C-L: see Spanish 177S; also C-L: Art History 177S, Visual Studies 126KS, Latin American Studies
132S. What's Lost in Translation? Latin American Theater in English. ALP, CCI, CZ One course. C-L: see Spanish 129S; also C-L: Theater Studies 127S, Cultural Anthropology 135S
140. Selected Topics in Comparative Area Studies. CCI Topics vary from semester to semester, focusing either on specific world regions or particular comparative/global issues. Instructor: Staff. One course.

140S. Selected Topics in Comparative Area Studies. CCI Seminar version of Comparative Area Studies 140. Instructor: Staff. One course.

141A. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 146; also C-L: Cultural Anthropology 147, History 101G, Medieval and Renaissance Studies 146A, Ethics

141AS. Advanced Modern Hebrew. ALP, CCI, FL One course. C-L: see Hebrew 126S; also C-L: Jewish Studies 126S

141B. Representing the Middle East. CCI, CZ, SS One course. C-L: see Cultural Anthropology 132; also C-L: Asian and African Languages and Literature 132, History 131B, Turkish 132, Visual Studies 110H, Islamic Studies

141C. Jewish Mysticism. CZ, EI One course. C-L: see Religion 134; also C-L: Medieval and Renaissance Studies 134C, Jewish Studies 106, Ethics

141E. Islamic Mysticism: Perso-Indian (Eastern) Traditions. CCI, CZ, EI One course. C-L: see Religion 152B; also C-L: Islamic Studies, Ethics

142A. Advanced Arabic. ALP, FL One course. C-L: see Arabic 126

151A. Life in America: Identity and Everyday Experience. CCI, CZ, SS One course. C-L: see Cultural Anthropology 106

151B. The Caribbean in the Eighteenth Century. CCI, CZ One course. C-L: see History 127B; also C-L: African and African American Studies 127B, Latin American Studies

151C. Variety in Language: English in the United States. CCI, SS One course. C-L: see Linguistics 187; also C-L: Cultural Anthropology 187, English 187

151ES. Geography of Canada. CCI, SS One course. C-L: see Canadian Studies 103S

160A. Russian Stylistics and Conversation. ALP, CCI, FL, W One course. C-L: see Russian 199

160S. Topics in Polish Literature. ALP, CCI One course. C-L: see Polish 174S

161A. Advanced Russian: Readings, Translation, and Syntax. CCI, FL One course. C-L: see Russian 196


161C. Law and Constitutional Reform in Russia and the Former Soviet Union. CCI, CZ One course. C-L: see Russian 140; also C-L: Political Science 105

161E. Law and Globalization in Emerging Markets. CCI, SS One course. C-L: see Russian 139S; also C-L: Public Policy Studies 135S

170A. Melodrama East and West. ALP, CCI One course. C-L: see Asian and African Languages and Literature 179; also C-L: Women's Studies 179, Literature 151J, Visual Studies 105E

170B. Advanced Hindi. ALP, CCI, FL One course. C-L: see Hindi 126

170C. Dance and Dance Theater of Asia. ALP, CCI, CZ One course. C-L: see Dance 149; also C-L: Cultural Anthropology 149, Theater Studies 133, Asian and African Languages and Literature 149, Religion 161C

170E. Gender in Dance and Theatre. ALP, CCI, CZ One course. C-L: see Dance 175; also C-L: Women's Studies 111, Theater Studies 132, Cultural Anthropology 149A, Asian and African Languages and Literature 176

170F. Modern South Asia. CZ, EI, W One course. C-L: see History 139B

170G. Religions of India. CCI, CZ One course. C-L: see Religion 140
170H. Kundalini Yoga and Sikh Dharma. ALP, CCI, CZ One course. C-L: see Dance 155; also C-L: Religion 161H, Asian and African Languages and Literature 135

180A. French Art and Visual Culture in the Early Modern Period. ALP, CCI, CZ, R One course. C-L: see Visual Studies 101C; also C-L: Medieval and Renaissance Studies 157

180B. Modern Architecture. ALP, CCI, CZ One course. C-L: see Art History 189A

180BD. Modern Architecture. ALP, CCI, CZ One course. C-L: see Art History 189AD


180E. Tudor/Stuart Britain. CZ, R, W One course. C-L: see History 107A; also C-L: Medieval and Renaissance Studies 107A

180F. Modern Britain. CCI, CZ, W One course. C-L: History 107B

180G. Europe in the Twentieth Century. CCI, CZ One course. C-L: see History 135A

180H. Mozart and His Time. ALP, CCI, W One course. C-L: see Music 145

181CS. Italian Popular Culture. ALP, CCI, FL One course. C-L: see Italian 118S

181E. French Cinema. ALP, CCI, FL One course. C-L: see French 155; also C-L: Film/Video/Digital 111B, Visual Studies 126E

181H. The Reformation of the Sixteenth Century. CCI, CZ, EI One course. C-L: see Religion 158; also C-L: History 156A, Medieval and Renaissance Studies 156A, Ethics

182B. Italian Women Writers. ALP, EI One course. C-L: see Italian 135; also C-L: Women's Studies

182CS. Italian Identities Between Europe and the Mediterranean. CCI, CZ, FL One course. C-L: see Italian 160S

182FS. French for Current Affairs. CCI, FL One course. C-L: see French 104S

182GS. The Making of Barcelona: Introduction to Catalan Language and Culture. CCI, CZ, FL One course. C-L: see Spanish 106S

182H. Sex, Death, and a Little Love: Boccaccio's Decameron. ALP, CCI, CZ, R One course. C-L: see Italian 144; also C-L: Medieval and Renaissance Studies 149

183A. Romantic Fairy Tales: Literary and Folk Fairy Tales from Grimms to Disney. ALP, CCI, CZ One course. C-L: see German 173; also C-L: English 146, Literature 151E

183E. French in the New World. ALP, CCI, CZ, FL One course. C-L: see French 132

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.
195. **At Home Abroad: Ways of Learning Through Study Abroad.** CCI, R Challenges to cross-cultural communication and understanding, the dynamics of travel, and issues of identity for students studying abroad. Crafting research proposals in preparation for field investigation abroad. Attention to research techniques. Intended for students preparing to study abroad. Instructor: Gheith or Litle. Half course.

196. **Coming Home: Processing Study Abroad Experience.** CCI, CZ, R Evaluation of the study abroad experience with a focus on challenges to cross-cultural communication and understanding, the dynamics of travel, and issues of identity. Intended for students returning from study abroad, assisting them to evaluate their experiences abroad through the lens of research as well as of personal and social experience, how these may be related. Attention to research techniques. Instructor: Gheith or Litle. Half course.

197S. **Senior Honors Seminar.** CCI, CZ, R, SS, W Thesis design, research, and writing. First semester of a two course sequence. Open to seniors majoring in International Comparative Studies. Consent of instructor required. Instructor: Gheith or Litle. One course.

198S. **Senior Honors Seminar.** CCI, CZ, R, SS, W Continuation of International Comparative Studies 197S. Open to seniors majoring in International Comparative Studies. Consent of instructor required. Instructor: Gheith or Litle. One course.

200S. **Capstone Seminar in International Comparative Studies.** CCI, CZ, EI, SS Gives students the opportunity to review issues and concepts raised in previous major courses, and in related experiences (such as study or research abroad), through the lens of how to ethically manage cross-cultural communications as nations, organizations, and individuals. Addresses a wide range of issues, focusing in particular on identity and globalization, and the relationship between them. Open to seniors majoring in International Comparative Studies. Instructor: Gheith or Litle.

201AS. **Political Participation: Comparative Perspectives.** CCI, SS One course. C-L: see Political Science 206S

201BS. **Current Issues in International and Development Economics.** SS, W One course. C-L: see Economics 268S; also C-L: Canadian Studies

201CS. **International Environmental Regimes (B, D).** EI, SS, STS One course. C-L: see Political Science 271S; also C-L: Public Policy Studies 258S

201E. **Comparative Party Politics.** CCI, R, SS One course. C-L: see Political Science 277; also C-L: Canadian Studies

202A. **Comparative Legislative Politics.** R, SS, W One course. C-L: see Political Science 280

221BS. **Millennial Capitalisms: Global Perspectives.** CCI, CZ, R, SS One course. C-L: see Cultural Anthropology 264S

280B. **Modern Literature and History.** ALP, CCI, CZ, FL One course. C-L: see French 256; also C-L: History 256

280ES. **Seminar in German Studies.** CCI, CZ, R One course. C-L: see German 299S

281ES. **Cinema and Literature in Italy.** ALP, CCI One course. C-L: see Italian 225S; also C-L: Film and Video

299. **Selected Topics.** Topics vary from semester to semester. Instructor: Staff.

299S. **Seminar in Selected Topics.** Topics vary from semester to semester. Instructor: Staff. One course.

**Introductory Courses:** 90A, 90B


**Area Courses—Africa:** 110A, 110CS, 103FS

**Area Courses—East Asia:** 120A, 120B, 120C, 120G, 120H, 121C, 121E, 121G, 221AS, 221BS
Area Courses—Middle East: 141A, 141B, 141C, 141E
Area Courses—North America: 98, 151A, 151ES
Area Courses—Russia and Eastern Europe: 160A, 161A
Area Courses—South Asia: 141A, 170B, 170C, 170E, 170F, 170G, 170H

The following courses, while not having ICS numbers, also count towards the International Comparative Studies major and minor.

INTRODUCTORY COURSES

African and African American Studies
70. Topics on the Third World and the West
71. Topics on the Third World and the West

Cultural Anthropology
145A. World Music: Aesthetic and Anthropological Approaches

History
25. Introduction to World History: To 1700
26. Introduction to World History: Since 1700
75. Topics on the Third World and the West
76. Topics on the Third World and the West

Italian
143. Dante's Divine Comedy: Hell, Purgatory and Paradise

Literature
98. Introduction to the Study of Literature and Society

Medieval and Renaissance Studies
166. Dante's Divine Comedy: Hell, Purgatory and Paradise

Music
136. World Music: Aesthetic and Anthropological Approaches

Political Science
92. States, Markets, and Democratization: Introduction to Comparative Politics
149D. Globalization and Public Policy

Public Policy Studies
185D. Globalization and Public Policy

Religion
161G. Dante's Divine Comedy: Hell, Purgatory and Paradise

Visual Studies
110G. Global Culture

COMPARATIVE/GLOBAL ISSUES COURSES

African and African American Studies
121. Introduction to Asian and African Literature

Asian and African Languages and Literature
121. Introduction to Asian and African Literature

Cultural Anthropology
110. Advertising and Society: Global Perspective
117. Global Culture
139. Marxism and Society
190. Theoretical Foundations of Cultural Anthropology

Economics
148. History of Economic Thought
219S. Economic Problems of Underdeveloped Areas
286. Economic Growth and Development Policy

Education
139. Marxism and Society
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<thead>
<tr>
<th>Subject</th>
<th>Course Number</th>
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<td><strong>English</strong></td>
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<td>Advertising and Society: Global Perspective</td>
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<td><strong>History</strong></td>
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<td>101C</td>
<td>The Foundations of Modern Terrorism</td>
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<td>Madness and Society in Historical Perspective</td>
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<td>History of Economic Thought</td>
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<td>Marxism and Society</td>
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<td><strong>Literature</strong></td>
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<td>International Popular Culture</td>
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<td>181A</td>
<td>Marxism and Society</td>
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<td><strong>Music</strong></td>
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<td>119S</td>
<td>The Humanities and Music</td>
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<td>156S</td>
<td>Music History II: From 1650 to 1850</td>
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<td>Music History III: After 1850</td>
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<td>116S</td>
<td>Post-World War II Europe and East Asia: A Comparative Perspective</td>
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<td>147D</td>
<td>Environmental Politics and Policies in the Developing World</td>
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<td>Political Economy of Development</td>
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<td>Comparative and Historical Methods</td>
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<td><strong>Public Policy Studies</strong></td>
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<td>Environmental Politics and Policies in the Developing World</td>
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<td>Comparative Health Care Systems</td>
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<td>Economic Growth and Development Policy</td>
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<td>Special Topics in Russian and American Culture</td>
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<td>The Challenges of Development</td>
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<td>Organizations and Global Competitiveness</td>
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<td>Nations, Regions, and the Global Economy</td>
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<td>110E</td>
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<td>121F</td>
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<td>History of Africa: From Antiquity to Early Modern Times</td>
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<td>History and Modern Africa</td>
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<td>Culture and Politics in Africa</td>
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<td>Religions of the African Diaspora</td>
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<td><strong>Cultural Anthropology</strong></td>
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<td>115A</td>
<td>History of Africa: From Antiquity to Early Modern Times</td>
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<td>History and Modern Africa</td>
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<td><strong>Religion</strong></td>
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<td>Religions of the African Diaspora</td>
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<td><strong>Visual Studies</strong></td>
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<td>Culture and Politics in Africa</td>
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AREA COURSES: EAST ASIA

Art History
180B. Later Japanese Art
181A. Japanese Print Culture
272S. Topics in Chinese Art
274S. Topics in Japanese Art

Asian and African Languages and Literature
162. Modern Japanese Literature and Culture
163. Korean Literature in Translation
165. Arabic Culture and 9/11
253. East Asian Cultural Studies
262. Modern Japanese Literature and Culture
288. Seminar on Chinese Cinema
288S. Seminar on Modern Chinese Cinema

Chinese
125. Advanced Chinese
183S. Topics in Modern Chinese
184S. Topics in Modern Chinese

Cultural Anthropology
163. Themes in Chinese Culture and History
254. East Asian Cultural Studies
260. Modern Japanese Literature and Culture

History
143A. Ancient and Early Modern Japan
143B. The Emergence of Modern Japan
163G. Themes in Chinese Culture and History

Japanese
183S. Topics in Japanese
184S. Topics in Japanese

Political Science
100G. Themes in Chinese Culture and History
169. Chinese Politics
182. China and the World (B, D)

Visual Studies
173. Chinese Visual Culture

AREA COURSES: LATIN AMERICA

History
174B. Modern Latin America

Political Science
151A. Dictators and Democrats in Modern Latin America

Spanish
116. Introduction to Spanish-American Literature
121. Latin-American Literature in Translation
144S. Duke in Andes: Special Topics
148A. Dictators and Democrats in Modern Latin America
175S. Hispanic Literature and Popular Culture

AREA COURSES: MIDDLE EAST

African and African American Studies
254. Justice, Law, and Commerce in Islam

Arabic
125. Advanced Arabic
183. Topics in Arabic
184. Topics in Arabic

Asian and African Languages and Literature
165. Arabic Culture and 9/11
### Cultural Anthropology
- 148. Introduction to Islamic Civilization

### Hebrew
- 125S. Advanced Modern Hebrew

### History
- 102G. Introduction to Islamic Civilization
- 152. The Modern Middle East
- 296S. United States Policy in the Middle East

### Jewish Studies
- 125S. Advanced Modern Hebrew
- 149. The Modern Middle East

### Medieval and Renaissance Studies
- 147A. Introduction to Islamic Civilization
- 254. Justice, Law, and Commerce in Islam

### Public Policy Studies
- 257S. United States Policy in the Middle East

### Religion
- 147. Introduction to Islamic Civilization
- 254. Justice, Law, and Commerce in Islam
- 284. The Religion and History of Islam

### AREA COURSES: NORTH AMERICA

#### African and African American Studies
- 124S. Slave Society in Colonial Anglo-America: The West Indies, South Carolina, and Virginia
- 127A. The Caribbean, 1492-1700

#### History
- 111A. North America to 1760
- 124S. Slave Society in Colonial Anglo-America: The West Indies, South Carolina, and Virginia
- 127A. The Caribbean, 1492-1700
- 145A. Africans in America to the Civil War
- 145B. African Americans Since the Civil War
- 183S. Canada from the French Settlement

### AREA COURSES: RUSSIA

#### History
- 161. From Tsars to Commissars: Russian Cultural History
- 201S. The Russian Intelligentsia and the Origins of the Revolution

#### Political Science
- 276. Media in Post-Communist Societies

#### Public Policy Studies
- 131. Law, Culture, and the Russian Legal Tradition
- 243. Media in Post-Communist Societies

#### Russian
- 103S. Studies in the Russian Language and Culture
- 104S. Studies in the Russian Language and Culture
- 108S. Soviet Civilization: History and Its Mythologies
- 135A. Contemporary Russian Media
- 149S. Russian Culture in the Era of Terror: A Reexamination
- 157. Law, Culture, and the Russian Legal Tradition
- 161. Masterpieces of Nineteenth-Century Russian Literature I
- 162. Masterpieces of Nineteenth-Century Russian Literature II
- 169. Women and Russian Literature
- 175. Tolstoy
- 176. Dostoevsky
- 177S. Chekhov
- 195. Advanced Russian
- 262. Masterpieces of Nineteenth-Century Russian Literature II
- 269. Women and Russian Literature
Theater Studies
122S. Chekhov

Visual Studies
127E. Contemporary Russian Media

**AREA COURSES: SOUTH ASIA**

**Asian and African Languages and Literature**
137. Contemporary Culture in South Asia
160. Introduction to the Civilizations of Southern Asia

**Cultural Anthropology**
101. Introduction to the Civilizations of Southern Asia
148. Introduction to Islamic Civilization

**History**
102G. Introduction to Islamic Civilization
193. Introduction to the Civilizations of Southern Asia

**Medieval and Renaissance Studies**
147A. Introduction to Islamic Civilization

**Religion**
144. Introduction to the Civilizations of Southern Asia
147. Introduction to Islamic Civilization

**Russian**
246. Media in Post-Communist Societies

**AREA COURSES: WESTERN EUROPE**

**Art History**
151. Art of Italy in the Seventeenth Century
166. Art in Europe, 1850-1900
167. Modernism, Avant-gardism, and Visual Art, 1900-1945
190. Berlin: Architecture, Art and the City, 1871-to the Present

**Cultural Anthropology**
182. Contemporary European Issues

**Economics**
60. Economics of a United Europe
146. Adam Smith and the System of Natural Liberty

**French**
110S. Contemporary Ideas
142. France in the Making: Language, Nation, and Literary Culture in Premodern Europe
143S. Topics in Renaissance Literature and Culture
146. The French Enlightenment
196. Aspects of Contemporary French Culture

**German**
126S. Masters of the Modern: Great Writers of the 20th Century
133S. Introduction to German Drama
152S. Berlin in Literature and Culture
153. Current Issues and Trends in Germany
155. Advanced German Cultural Studies
245S. German Literature and Culture 1900-1945
247S. Contested Memories in German Culture since 1945
270. Consciousness and Modern Society

**History**
135B. Weimar and Nazi Germany
138. Reformation Europe
146A. Adam Smith and the System of Natural Liberty

**Italian**
123. Aspects of Italian Literature
131. Topics of Italian Civilization
137. Modernism, Avant-gardism, and Visual Art, 1900-1945
Literature
270. Consciousness and Modern Society

Medieval and Renaissance Studies
138. Reformation Europe
140A. France in the Making: Language, Nation, and Literary Culture in Premodern Europe
151C. Art of Italy in the Seventeenth Century
152B. Netherlandish Art and Visual Culture in the Seventeenth and Eighteenth Centuries
158. History of Netherlandish Art in a European Context
159. History of Netherlandish Art in a European Context
160S. Topics in Renaissance Literature and Culture

Political Science
135. Political Development of Western Europe
136. Comparative Government and Politics: Western Europe

Spanish
133S. Contemporary Government and Politics: Western Europe
137. Topics in Contemporary Spanish Culture
171. Literature of Contemporary Spain
280. Emigrants and Immigrants: Spain in the Sixties and Now

Theater Studies
123S. Introduction to German Drama

Visual Studies
119A. Weimar and Nazi Germany
157. Netherlandish Art and Visual Culture in the Seventeenth and Eighteenth Centuries
158. History of Netherlandish Art in a European Context
159. History of Netherlandish Art in a European Context

THE MAJOR

Requirements
1. Two core global issues courses: International Comparative Studies 125, Comparative Approaches to Global Issues, best taken in the spring semester of the freshman or sophomore year. International Comparative Studies 200S, Advanced Topics, taken senior year. This is the capstone of the International Comparative Studies major.

2. Primary Area Courses:
   a. Corequisite Foreign Language Requirement. Four semester courses in a single language of the primary area are required. Students with advanced placement credits or other evidence of foreign language proficiency are not exempted from this requirement. However, if no language course is available at a sufficiently advanced-level students may substitute one or two courses in a second language to meet this requirement.
   b. Four semester courses in the geographical area of specialization, with a strong recommendation that students choose courses from a variety of disciplines. Areas and courses are listed above. Others may be selected with the consent of the director.

3. Selected global issues courses: Four semester courses selected from courses dealing with global issues in a comparative or connective framework or treating another region of the world. ICS 195 and 196 together can count as one of these four courses. No more than one course below 100 may be counted.

   Honors Seminar. For Graduation with Distinction, the student must complete a research project in the senior year, through their participation in the ICS 197S-198S senior seminar. Candidates must apply in their junior year. Thesis students may count one credit towards the Primary Area requirement (part b) and one towards the Selected global issues course requirement. Selection criteria will include both the feasibility of the proposed
topic, and the student's ability and skills to carry it out successfully. Inquiries should be addressed to the directors, Comparative Area Studies, 134 Franklin Center.

THE MINOR

Requirements

1. Three global issues courses, one of which must be ICS 125, Comparative Approaches to Global Issues. The other can be selected among ICS 200S, Advanced Topics, ICS 195-196, or other Comparative/Connective or Global Issues classes.

2. Primary Area Courses:
   - Corequisite Foreign Language Requirement. Two semester courses in a single language of the primary area are required.
   - Two courses in a primary geographic area

Islamic Studies (ISLAMST)

Professor Lawrence, Director

A certificate, but not a major, is available in this program.

The undergraduate certificate in Islamic Studies is administered by the Duke Islamic Studies Center (DISC). This interdisciplinary certificate is designed to provide students with comparative, historical, and cultural knowledge of the Muslim world; working knowledge of a Muslim language acquired through two years of language study; and cross-cultural exposure gained through a study abroad experience in a Muslim-majority country. The program allows students to draw on the strength and scope of Duke’s offerings in Islamic Studies, as well as on complementary courses offered at UNC-Chapel Hill, which also has a strong program in Middle Eastern/Islamic Studies. The program is designed to be rigorous enough to ensure that students who fulfill its requirements will have language skills and a breadth of knowledge about Islam and the Muslim world not possible within other majors or minors, yet broad and flexible enough to allow students to develop a sequence of courses that will complement their major field of study.

The approach to Islamic Studies at Duke represents a new paradigm for studying the Muslim world in which Islam is understood as a cosmopolitan tradition that is radically networked (i.e., connected across recognized boundaries). Thus, students pursuing a certificate in Islamic Studies are encouraged to investigate Islamic civilization through the rubric of Muslim networks that transcend geographic, linguistic, historical, sociocultural, and disciplinary boundaries. Participating departments include Asian and African Languages and Literature, Cultural Anthropology, International Comparative Studies, Economics, History, Literature, Political Science, Religion, Slavic and Eurasian Studies (Turkish and Persian), and Sociology.

In addition to coordinating the certificate program, the Duke Islamic Studies Center also sponsors lectures and conferences that bring prominent American and international Islamic Studies scholars, artists, writers, and performers to Duke; coordinates a Muslim Cultures Focus cluster; and promotes cross-cultural exchange between Western and Islamic students and other members of the Duke community.

PROGRAM REQUIREMENTS

Students interested in earning a certificate in Islamic Studies are encouraged (but not required) to declare it by their fifth semester.

To earn an undergraduate certificate in Islamic Studies, students must complete six (6) courses, as well as the foreign language and study abroad components described below:

Islamic Studies (ISLAMST) 359
A) an introductory course: Religion 146. Introduction to Islamic Civilization (seventh–sixteenth centuries) or Religion 147. Introduction to Islamic Civilization (seventeenth century–present).

B) a capstone seminar: Muslims in Global Contexts, taken as a junior or senior, which will include a significant research component. The capstone course will be offered in Religion in 2008 and in Economics in fall 2009.

C) Four (4) additional elective courses, two of which must be at the 100 level or above. In order to ensure that students develop an understanding of Islam as a global, networked tradition and of the interdisciplinary nature of Islamic Studies, at least three departments must be represented in the elective courses selected to fulfill certificate requirements. The elective course sequence must include at least one religion course and one social science course. No more than two (2) courses may be used to fulfill requirements for the certificate and the student’s major, minor, or other certificates. Appropriate courses may come from the list of approved elective courses below or may include other courses (new courses, special topics courses, independent study) with at least 50 percent of course content on Islam or the Muslim world. To determine if specific courses meet requirements for the certificate, students should consult the faculty director. New faculty have recently been hired in Economics, Cultural Anthropology, Sociology, History, and Political Science, so students should check for new Islamic Studies courses in those departments. The Duke Islamic Studies Center plans to regularly offer a “Muslim Cultures” Focus cluster in the spring semester (open to both first- and second-year students), and the two Focus seminars will count toward the Islamic Studies certificate. Students enrolled in the certificate program may take up to two (2) of their required electives for the certificate at UNC-Chapel Hill.

D) Language Requirement: In addition to the six required Islamic Studies courses, certificate recipients will be required to complete two years of study in an Islamic language (i.e., a language spoken in a majority-Muslim country). Students with enough language proficiency to place into a higher than elementary-level language course must take at least one applicable language course at the 100 level. Muslim languages include Arabic, Turkish, or Persian (available at Duke) or Persian, Urdu, or Swahili (available at UNC-Chapel Hill).

E) Required study abroad in a majority-Muslim country. DukeEngage programs in majority-Muslim countries will also satisfy this requirement. To enroll in the certificate program, students should officially declare their intention to pursue the certificate through the Academic Advising Center (first- and second-year students) or through the Office of the University Registrar (sophomores who have already declared a major, juniors and seniors) and then contact the Duke Islamic Studies Center.

REQUIRED COURSES

Core Course
One of the following two courses:
Religion 146. Introduction to Islamic Civilization (seventh–sixteenth centuries)
Religion 147. Introduction to Islamic Civilization (seventeenth century–present).

Capstone Course
Religion 195S. Muslims in Global Contexts

ELECTIVES

African and African American Studies
254. Justice, Law, and Commerce in Islam

Asian and African Languages and Literature
72. War, Gender, and Postcoloniality
127S. The politics of Turkish Literature and Film
132. Representing the Middle East
159. Palestine, Israel, Arab-Israeli Conflict
165. Arabic Culture and 9/11
173S. Gender Jihad: Muslim Women Writers
178. Introduction to Islamic Communities in North Carolina

**Cultural Anthropology**
132. Representing the Middle East
152. The Turks: From Ottoman Empire to European Union
155. Palestine, Israel, Arab-Israeli Conflict

**Economics**
133. Economic History and Modernization of the Islamic Middle East

**Film/Video/Digital**
113. States of Exile and Accented Cinemas
114. Performance Traditions of the Middle East

**History**
131B. Representing the Middle East
141A. The Turks: From Ottoman Empire to European Union

**International Comparative Studies**
141B. Representing the Middle East
141E. Islamic Mysticism: Perso-Indian (Eastern) Traditions

**Jewish Studies**
155. Palestine, Israel, Arab-Israeli Conflict

**Literature**
113AS. States of Exile and Accented Cinemas
118. Performance Traditions of the Middle East
163HS. The Middle East through Historical Literature
211S. Theory and Practice of Literary Translation

**Medieval and Renaissance Studies**
254. Justice, Law, and Commerce in Islam

**Political Science**
129. Economic History and Modernization of the Islamic Middle East

**Religion**
152B. Islamic Mysticism: Perso-Indian (Eastern) Traditions
161F. The Turks: From Ottoman Empire to European Union
161O. Introduction to Islamic Communities in North Carolina
283. Islam and Modernism
284. The Religion and History of Islam

**Russian**
138S. Russia, Turkey, and the Cultures of Eurasia

**Theater Studies**
129B. Performance Traditions of the Middle East

**Turkish**
105S. The Middle East through Historical Literature
106S. Tracing Muslim Identities in Eurasia
120S. The politics of Turkish Literature and Film
132. Representing the Middle East
135. The Turks: From Ottoman Empire to European Union
138S. Russia, Turkey, and the Cultures of Eurasia
235. The Turks: From Ottoman Empire to European Union

**Visual Studies**
110H. Representing the Middle East

**SPECIAL TOPICS COURSES, OFFERED PERIODICALLY**

**Literature**
49S. Film and Visual Culture
97FCS. Islam and Comparative World Cinema (Focus Seminar)
97FCS. Love and Sexuality: Coming of Age Films from the Muslim World (Focus Seminar)
125. Gender and Representation—The Middle East
292. Film and the Foreign: Contemporary Iranian Cinema in Focus

Political Science
117.02 Introduction to Middle East Politics
299. Religion, Politics, and Violence

Religion
89FCS. Allah, Sex, and Money (Focus Seminar)
89FCS Fundamental Challenges: Islam, Human Rights, Terrorism (Focus Seminar)
89FCS. The Qur’an Over Time (Focus Seminar)
185. Islam in the West
196S. Islamic Law and Ethics
196S. Good Muslim, Bad Muslim: Debates in Muslim Law and Ethics
245S. Madrasas, Maps, and Money: The Geopolitics of Islamic Knowledge

Sociology
195S. Gender, Labor, and Globalization
195S. Sociology of the Middle East

Italian
For courses in Italian, see romance studies.

Japanese
For courses in Japanese, see Asian and African Languages and Literature.

Jewish Studies (JEWHST)
Professor E. Meyers (religion), Director; Professor Bland (religion), Director of Undergraduate Studies; Professors Golding (philosophy), Koonz (history), C. Meyers (religion), Peters (religion), and Shatzmiller (history); Associate Professors Donahue (German) and Hacohen (history); Assistant Professors Ginsberg (Asian and African languages and literature) and Stein (cultural anthropology); Visiting Assistant Professor Y. Miller (history); Instructor Plesser (Asian and African languages and literature)

A certificate, but not a major, is available in this program.

This program is sponsored by the interdisciplinary Duke Center for Jewish Studies. Participating departments and programs include Asian and African languages and literature, classical studies, comparative area studies, cultural anthropology, English, Germanic languages, history, medieval and renaissance studies, political science, religion, and women’s studies. A full range of courses is available in classical and modern Hebrew. Also, relevant courses in Jewish studies may be taken at nearby UNC-Chapel Hill.

The certificate program offers students the flexibility to design, with the aid of a faculty advisor, a curriculum that meets individual interests and talents.

Six courses are required for the certificate, including Religion 40, Introduction to Judaism, and History 134C, Jewish History, 1780’s to the Present. Four courses must be at or above the 100 level. Not more than three courses in Religion may count for the certificate. One (semester) Hebrew language course may count toward the certificate.

1. Elementary Modern Hebrew. FL One course. C-L: see Hebrew 1
1A. Biblical Hebrew I. FL One course. C-L: see Religion 1
2. Elementary Modern Hebrew. FL One course. C-L: see Hebrew 2
2A. Biblical Hebrew II. FL One course. C-L: see Religion 2
40. Judaism. CCI, CZ One course. C-L: see Religion 40; also C-L: Women's Studies
63. Intermediate Modern Hebrew. ALP, FL One course. C-L: see Hebrew 63
64. Intermediate Modern Hebrew. ALP, CZ, FL One course. C-L: see Hebrew 64
100. The Old Testament/Hebrew Bible. CCI, CZ, EI One course. C-L: see Religion 100; also C-L: Ethics
103. Women in the Biblical Tradition: Image and Role. CCI, CZ, EI One course. C-L: see Religion 109; also C-L: Women's Studies
105. Classical Judaism, Sectarianism, and Early Christianity. CCI, CZ One course. C-L: see Religion 133
106. Jewish Mysticism. CZ, EI One course. C-L: see Religion 134; also C-L: Medieval and Renaissance Studies 134C, International Comparative Studies 141C, Ethics
107. Contemporary Jewish Thought. CCI, CZ, EI One course. C-L: see Religion 136
125S. Advanced Modern Hebrew. ALP, CCI, FL One course. C-L: see Hebrew 125S; also C-L: International Comparative Studies
126S. Advanced Modern Hebrew. ALP, CCI, FL One course. C-L: see Hebrew 126S; also C-L: International Comparative Studies 141AS
130. Representing the Holocaust. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 156; also C-L: Literature 165B, Religion 161K
131S. Topics in Modern Hebrew. ALP, CCI, FL One course. C-L: Hebrew 183S
132. The Palestinian-Israeli Conflict in Literature and Film. ALP, CCI, CZ, EI One course. C-L: see Asian and African Languages and Literature 183; also C-L: Literature 163Q
139. Introduction to Israeli Culture. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 155; also C-L: Religion 161P, Literature 163L
140. Contemporary Israeli Cinema. ALP, CCI, EI One course. C-L: see Asian and African Languages and Literature 161; also C-L: Film/Video/Digital 111H, Literature 112M, Cultural Anthropology 161, Women's Studies 151
145. History of Jews in the Early Middle Ages. CCI, CZ, R One course. C-L: see History 134A; also C-L: Medieval and Renaissance Studies 134A
146. History of Jews in the Late Middle Ages. CCI, CZ, R One course. C-L: see History 134B; also C-L: Medieval and Renaissance Studies 134B
147. Jewish History, 1780's to the Present. CCI, CZ, EI, SS One course. C-L: see History 134C; also C-L: Ethics
148. The Crusades to the Holy Land. CCI, CZ, R One course. C-L: see History 144A; also C-L: Medieval and Renaissance Studies 144C
149. The Modern Middle East. CCI, CZ One course. C-L: see History 152; also C-L: International Comparative Studies
155. Palestine, Israel, Arab-Israeli Conflict. CCI, EI, SS One course. C-L: see Cultural Anthropology 155; also C-L: Asian and African Languages and Literature 159, Islamic Studies
160S. Legacies of the Holocaust in German Culture. ALP, CCI, EI, FL One course. C-L: see German 139S
162. German Jewish Culture from the Enlightenment to the Present. ALP, CCI, CZ One course. C-L: see German 187; also C-L: Literature 163J
163. Jewish Berlin. ALP, CCI, CZ, EI One course. C-L: see German 196C; also C-L: Literature 163K, International Comparative Studies
195A. Internship: Hospital-Jewish Approaches to Visiting the Sick. EI Internship: Hospital-Jewish Approaches to Visiting the Sick. The Jewish practice of bikkur holim (visiting the sick) examined in readings and hospital visits with clinical and pastoral
supervision. Readings and discussions focusing on: historical, ritual and ethical aspects of comforting the ill. Research paper required. Instructor: Tulsky. One course.


197. Special Topics in Jewish Studies. Topics vary from semester to semester. Instructor: Staff. One course.

198S. Special Topics in Jewish Studies. Seminar version of Jewish Studies 197. Instructor: Staff. One course.

201. Hebrew Prose Narrative. FL Three courses. C-L: see Religion 207
203. Rabbinic Hebrew. FL One course. C-L: see Religion 220
204. Readings in Hebrew Biblical Commentaries. One course. C-L: see Religion 221
206. Archaeology of Palestine in Hellenistic-Roman Times. CCI, CZ, STS One course. C-L: see Religion 244

230. Representing the Holocaust. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 256

Opportunities for independent study are also offered in various related departments. Procedures for registration and applications are available in 230 Gray Building.

For further information, contact the director of the Center for Jewish Studies, Box 90964, Durham, NC 27708-0964.

Korean
For courses in Korean, see Asian and African languages and literature.

Latin
For courses in Latin, see classical studies.

Latin American Studies (LATAMER)
Professor of the Practice Merkx, Director

A certificate, but not a major, is available in this program.

The program in Latin American Studies, which is administered by the Center for Latin American and Caribbean Studies, provides students with the opportunity for interdisciplinary, in-depth study of the realities of Latin American societies and cultures. In addition to offering courses and a certificate on completion of the requirements, the Center for Latin American and Caribbean Studies also sponsors lectures, Mellon Visiting Professors, and an annual competition for Mellon Undergraduate Summer Research Awards in Latin America or the Caribbean. Moreover, the Center and the Institute of Latin American Studies at Chapel Hill sponsor the Consortium in Latin American Studies at the University of North Carolina at Chapel Hill and Duke University, which provides opportunities for collaboration with faculty and students from the University of North Carolina who are interested in Latin America. The Consortium sponsors yearly faculty exchanges between the two institutions, joint undergraduate seminars, and an annual Latin American Film Festival.

Students interested in earning a certificate in Latin American Studies are encouraged to declare it by completion of their fifth semester. Students may also elect this interest in Latin America while participating in a Duke-approved study abroad program either during a summer or during their junior year. Duke in the Andes in Quito, Ecuador, at the Pontifica Universidad del Ecuador is a new program as of spring 2007. In addition, students may
participate in the Duke in Costa Rica program. Opportunities for study abroad in other countries are also available.

For further information consult the academic coordinator of the Center for Latin American and Caribbean Studies at 2114 Campus Drive.

CERTIFICATE IN LATIN AMERICAN STUDIES

The course of study for program participants is intended to be interdisciplinary. Students working toward a certificate in Latin American Studies will declare a major in an academic department. To qualify for the certificate, students take "Introduction to Contemporary Latin America" (Latin American Studies 136), the interdisciplinary capstone seminar (Latin American Studies 198), fulfill the indicated language requirement, and take three additional area courses, two of which must be at or above the 100 level. Also, at least three different departments must be represented overall, with no more than three courses counting from one single department or major. The language requirement can be fulfilled in one of three ways: 1) by taking three language courses below the 100 level in any one of the most commonly taught languages spoken in Latin America: Spanish, Portuguese, French; 2) by taking one course taught in any one of these languages at the 100 level or above; or 3) by taking two courses in any one of the less commonly taught Latin American languages (such as Aymara, Quechua, Yucatec Maya). A Summer Intensive Yucatec Maya Language Program is also offered through the Consortium in Latin American Studies, on the UNC campus.

Appropriate courses may come from the list given below, or may include other courses not listed below (new courses, special topics courses, and independent study) with at least 50 percent of course content on a Latin American topic and with term papers or other major projects focusing on a Latin American subject. To determine if specific courses meet requirements for the certificate, students should consult the academic coordinator. Regular courses are described under the listing of the various departments. Students may also wish to take advantage of house courses offered on Latin American topics although house courses cannot satisfy the requirements of the certificate.

Eligible undergraduates satisfying the certificate may use no more than two courses that are also used to satisfy the requirements of any major, minor, or other certificate program. International Comparative Studies majors and minors interested in choosing Latin America as their primary area of concentration within that major or minor should consult the director of comparative area studies.

50. Duke-Administered Study Abroad: Special Topics in Latin American Studies. CCI Topics differ by section. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Latin American Studies. CCI Topics differ by section. Instructor: Staff. One course.

136. Introduction to Contemporary Latin America. CCI, CZ One course. C-L: see History 136A; also C-L: International Comparative Studies 132A

151E. Elections and Social Protest in Latin America. CCI, CZ, SS One course. C-L: see Political Science 151E; also C-L: International Comparative Studies 131E

198S. Capstone Seminar in Latin American Studies. CCI, CZ Required for students seeking the certificate in Latin American Studies. Synthesis, interpretation, and application of the knowledge and experience gained in the courses previously taken for the certificate. At least once a year, a Mellon Visiting Professor from Latin America will teach the capstone seminar. Open to juniors and seniors. Instructor: Staff. One course. C-L: International Comparative Studies 130ES

200S. Seminar in Latin American Studies. CCI Interdisciplinary study of geographical, historical, economic, governmental, political, and cultural aspects of modern Latin America and the current issues facing the region. Specific topics will vary from year to year. For seniors and graduate students. Instructor: Staff. One course.
202S. Research Methods In International Area Studies. CCI Interdisciplinary resources for graduate-level research in one or more area studies, with a particular focus on European, Latin American, East Asian, and Slavic Studies. Team teaching approach drawing on the diverse regional and disciplinary expertise of four course instructors, who are both subject librarians and area studies specialists. Instructor: Ackerman, Madden, Troost, Zitser. One course. C-L: Asian and African Languages and Literature 207S, Cultural Anthropology 291S, Russian 203S, Romance Studies 202S, German 264S

LATIN AMERICAN AREA COURSES

African and African American Studies
70. Topics on the Third World and the West
71. Topics on the Third World and the West
127A. The Caribbean, 1492-1700
127B. The Caribbean in the Eighteenth Century
138S. Francophone Literature
168S. The Atlantic Slave Trade
170. Afro-Brazilian Culture and History

Art History
177S. 20th Century Latin American Photography

Asian and African Languages and Literature
168S. Francophone Literature

Biology
134L. Fundamentals of Tropical Biology
135L. Research Methods in Tropical Biology
215. Tropical Ecology

Cultural Anthropology
191J. Gender and Sexuality in Latin America

Environment
217. Tropical Ecology

Film/Video/Digital
113. States of Exile and Accented Cinemas

French
161S. Francophone Literature

History
75. Topics on the Third World and the West
76. Topics on the Third World and the West
127A. The Caribbean, 1492-1700
127B. The Caribbean in the Eighteenth Century
162S. Francophone Literature
168A. The Emergence of the Atlantic Basin to 1713
168BS. The Atlantic Slave Trade
170C. Afro-Brazilian Culture and History
174A. Latin America: Colonialism and Its Consequences
174B. Modern Latin America

International Comparative Studies
103FS. The Atlantic Slave Trade
110CS. Francophone Literature
130AS. Research Seminar in Citizenship and Culture
130B. Gender and Sexuality in Latin America
130G. Introduction to Brazilian Literature
130H. Introduction to Spanish-American Literature
132BS. 20th Century Latin American Photography
151B. The Caribbean in the Eighteenth Century

Literature
113AS. States of Exile and Accented Cinemas
141. International Popular Culture
162B. The Idea of Latin America
Political Science
151A. Dictators and Democrats in Modern Latin America

Portuguese
111S. Research Seminar in Citizenship and Culture
113S. Introduction to Brazilian Literature
170C. Afro-Brazilian Culture and History

Sociology
126. The Challenges of Development

Spanish
115. Introduction to Spanish-American Literature
116. Introduction to Spanish-American Literature
117S. Spanish-American Short Fiction
121. Latin-American Literature in Translation
127. The Idea of Latin America
144S. Duke in Andes: Special Topics
148A. Dictators and Democrats in Modern Latin America
175S. Hispanic Literature and Popular Culture
177S. 20th Century Latin American Photography
181S. United States Latina/o Literatures and Cultural Studies

Visual Studies
121F. International Popular Culture
126KS. 20th Century Latin American Photography
225S. Latin American Modernism and Visual Culture

Women's Studies
189. Gender and Sexuality in Latin America

Linguistics (LINGUIST)
Associate Professor Andresen (English), Chair; Professor Andrews (Slavic and Eurasian studies), Director of Undergraduate Studies; Professors O'Barr (cultural anthropology), Rosenberg (philosophy), Rubin (psychology), and Thomas (romance studies); Associate Professors Day (psychology), Mazuka (psychology), and Rasmussen (German); Associate Professor of the Practice Walther (German); Assistant Professor of the Practice Fellin; Adjunct Assistant Professor Keul (German). Affiliated faculty: Professors Brandon (philosophy), Cooke (Asian and African languages and literature), Garci-Gómez (romance studies), and Rubin (psychology); Associate Professor Güzeldere (philosophy); Assistant Professor Sterrett (philosophy); Professor of the Practice Tufts (romance studies); Associate Professor of the Practice Kim (Asian and African languages and literature); Assistant Professor of the Practice Paredes (romance studies)

A major or minor are available in this program.

From the earliest philosophers to modern neuroscientists, researchers from a wide range of disciplines have explored a diverse range of issues concerning the human capacity for language and the diversity of the world's languages. Linguists work at the intersection of these issues and define linguistics as the science of language and languages. During the last 150 years, linguists have developed a variety of theoretical paradigms to describe and explain language history, dialect variation, cross-cultural similarities and differences, the neurological processing and production of language, and the evolutionary emergence of language.

The linguistics major at Duke is unusual in its range of theoretical approaches coupled to the study of languages of the world. The required courses for the major stress empirical methods and the global data base; the theory courses expose the student to the perspectives offered by historical and comparative linguistics, structural linguistics, generative linguistics, sociolinguistics, semiotics, discourse analysis, philosophy, cognitive linguistics and psycholinguistics. The major maintains the traditional and mainstream body of linguistic inquiry and, at the same time, encourages exploration of the most recent
developments in language study that issue from cultural and literary theory and the biological sciences.

48S. Focus Program Seminar on Linguistics. SS Focus Program on Linguistics. Topics vary each semester offered. Instructor: Staff. One course.

50. Duke-Administered Study Abroad: Special Topics in Linguistics. CCI The study of linguistics and languages on Duke-approved programs at foreign institutions of higher learning. Topics differ by section. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Linguistics. CCI Advanced study of linguistics and languages on Duke-Approved programs at foreign institutions of higher learning. Topics differ by section. Instructor: Staff. One course.

101. Introduction to Linguistics. CCI, SS Introduction to the scientific study of linguistics and languages. Topics include the origin and nature of language, methods of historical and comparative linguistics, theories and schools of linguistics, empirical and descriptive approaches to the study of language, including phonology, morphology, semantics, and syntax. Instructor: Butters or Tetel. One course. C-L: Cultural Anthropology 107, English 111, International Comparative Studies

102. Languages of the World. CCI, SS The major languages of the world viewed in the context of the communicative and significate functions of language as parameters that shape and define society. The role of language in defining and structuring culturally-based relationships from a semiotic point of view. The structure, writing systems, phonology, morphology, and lexicon of languages from the following groups: Indo-European, Semitic, Turkic, Finno-Ugric, Caucasian, Afroasiatic, Sino-Tibetan, Niger-Kordofanian, Dravidian, and Native American languages. Instructor: Andrews or Tetel. One course. C-L: Cultural Anthropology 114, English 114, Russian 117, International Comparative Studies 102E

103. Symbolic Logic. CZ One course. C-L: see Philosophy 103; also C-L: Information Science and Information Studies

104S. Introduction to Theoretical Linguistics. R, SS Introduction to the theoretical issues that inform the study of linguistics and languages. Topics include: history of linguistics, development of meta-language and the integration of linguistic theory with the latest findings in neuroscience and evolutionary theory. Instructor: Staff. One course. C-L: Cultural Anthropology 102S, English 113S

105S. Italian Sociolinguistics. CCI, CZ, FL, SS One course. C-L: see Italian 108S

107. Language Technologies and Culture Acquisition. R, SS, STS One course. C-L: see Russian 109; also C-L: Information Science and Information Studies

108. Philosophy of Mind. CZ, R One course. C-L: see Philosophy 112; also C-L: Visual Studies 122B, Information Science and Information Studies

109. Philosophy of Language. CZ One course. C-L: see Philosophy 109

110. Psychology of Language. R, SS One course. C-L: see Psychology 134

112. English Historical Linguistics (DS1, DS2, DS3, or DS4, as determined by instructor). SS One course. C-L: see English 112

120. Advertising and Society: Global Perspective. CCI, SS One course. C-L: see Cultural Anthropology 110; also C-L: English 120, Sociology 160, Visual Studies 110E, Policy Journalism and Media Studies, Canadian Studies, Women's Studies

120D. Advertising and Society: Global Perspective. CCI, SS One course. C-L: see Cultural Anthropology 110D; also C-L: Sociology 160D, English 120D

121. French Composition and Translation. CCI, FL One course. C-L: see French 108

122. Fundamentals of Spanish Linguistics. FL, SS One course. C-L: see Spanish 109

123S. Topics in Spanish Linguistics. CCI, FL One course. C-L: see Spanish 109S

124S. French Phonetics. FL One course. C-L: see French 107S

368 Courses and Academic Programs
125S. Bilingualism. CCI, SS One course. C-L: see Asian and African Languages and Literature 125S

133S. Neuroscience and Human Language. NS, SS The relationship of brain and language explored through a variety of methodologies and approaches, including first and second language acquisition across cultures, multilingualism, language disorders, and imaging studies of language acquisition, maintenance and loss. Special attention to Russian contributions to cognitive neuroscience and linguistic theory. Open only to students in the Focus Program. Prerequisite: Advanced Placement credit in biology. Instructor: Andrews. One course. C-L: Russian 133S

152S. Cognitive Psychology of Oral Traditions (C). CCI, SS One course. C-L: see Psychology 152S


174. Gender and Language. CCI, R, SS One course. C-L: see Russian 174; also C-L: Cultural Anthropology 174, English 115, Women's Studies 174


190A. Research Independent Study. R Individual research and reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

190B. Research Independent Study. R See Linguistics 190A. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

199. Special Topics. CCI, R, SS Study of theoretical and applied linguistics. Contrast and comparison of both theoretical approaches and language groups is required. Topics to be announced. Instructor: Staff. One course.

199S. Special Topics in Linguistics. CCI, R, SS Same as Linguistics 199 except instruction is provided in a seminar format. Instructor: Staff. One course.

201. Cognitive and Neurolinguistics. NS, R, SS The interrelationship between language and brain as described and analyzed in cognitive and neurolinguistics. Topics include localization theories, hemispheric dominance in language, language disorders, invasive and noninvasive scanning and imaging technologies (including ERP, EEG, fMRI, MEG), encoding and decoding of language at the phonological, morphological, syntactic, and semantic levels. Readings include scholarship from theoretical and cognitive linguistics, neurolinguistics, neuropsychology, neuropsychiatrics, and neuropsychology. Major research project required in form of research paper, laboratory or imagining experiment, or IRB document. Instructor: Andrews. One course. C-L: Russian 216

202S. Language, Brain, and Human Behavior. R, SS, STS Explores the intersection of cognition and language by looking at a variety of theories of language, including: traditional models that vary according to how much the capacity for language is attributed to "the genes" or to "the environment" and newer models that question and redescribe traditional definitions of terms such as "nature," "nurture," genetic code," and "language." How traditional and new models of language interpret the capacity for language in its relationship to the neurosciences, the cognitive sciences, and the social sciences. Instructor: Tetel. One course. C-L: Psychology 267S
203S. Language Evolution and Acquisition. R, SS
Both the phylogeny and ontogeny of language, i.e., both the wide and growing variety of scripts for the evolution of language in the human species and the various approaches to the emergence of language in the individual. The emergence of language in the individual and the particular language(s) the individual is exposed to, making linguistic relativity an important topic. Instructor: Tetel.
One course. C-L: Cultural Anthropology 208S

205. Semiotics and Linguistics. ALP, CCI, R, SS
One course. C-L: see Russian 205; also C-L: English 205

212S. Topics in Spanish Linguistics. FL, R, SS
One course. C-L: see Spanish 212S

213S. Linguistics and Law. SS
Topics include surreptitious recordings as criminal evidence; pornography, slander, defamation, and libel; interpretation of laws and contracts; copyright, patents, and trademarks; jury instructions; jury selection; courtroom language as a unique register; the language of judges' decisions; interrogations and confessions; official bilingualism; product warnings; clarity of instructions leading to potential liability issues. Instructor: Butters. One course. C-L: Cultural Anthropology 213S, English 215S

215S. Junior/Senior Seminar in Linguistics. CCI, R, SS

221. Structure of French. FL
One course. C-L: see French 212

228S. Recent and Contemporary Philosophy. CZ
One course. C-L: see Philosophy 228S

260. History of the German Language.
One course. C-L: see German 260; also C-L: Medieval and Renaissance Studies 260B

261S. Second Language Acquisition Theory and Practice. CCI, R
One course. C-L: see German 261S

268. Brain and Language (B, C). NS
Focus on cognitive processes and brain mechanisms involved in language comprehension and production. Psycholinguistic models and how these models may be implemented in the brain. Instructor: Andrews. One course. C-L: Psychology 268

299. Special Topics in Linguistics. CCI, R, SS
Advanced study of linguistic theory. Topics to be announced. Instructor: Staff. One course.

299S. Special Topics in Linguistics. CCI, R, SS
Same as Linguistics 299 except instruction is provided in a seminar format. Instructor: Staff. One course.

THE MAJOR
The major is composed of ten courses, eight of which must be at the 100 level or above. The courses combine empirical methods with theory. They are devised to provide depth and breadth in linguistic theory, the different schools of linguistics, the history and development of linguistic thought, and the interdisciplinary aspects of linguistics in the context of languages and cultures. Majors must take Linguistics 101 and 102, which define the fundamental questions of linguistic theory in the context of the world's languages; and in the junior or senior year the capstone course Linguistics 215S, which adds cohesion to the major. For depth, the student is required to take three courses from the list of theory courses, which provide the necessary theoretical and empirical constructs for the study of linguistics. In addition, two courses are required in one of the concentrations in a specific area of linguistics. All majors are required to take at least two foreign language courses at or above the 100-level. Students may petition to add courses to the list of courses that count toward the Theory and Disciplinary areas below (II and III).
MAJOR REQUIREMENTS

I. Introductory Linguistics Courses (2):
101. Introduction to Linguistics
102. Languages of the World

II. Theory: Three (3) courses in the study of theoretical linguistics. Courses to be chosen from the following lists:

A) Regularly Scheduled Linguistics Courses:
   103. Symbolic Logic
   104S. Introduction to Theoretical Linguistics
   109. Philosophy of Language
   110. Psychology of Language (cross-listed)
   112. English Historical Linguistics
   119. Language, Culture, and Society
   125S. Bilingualism
   133S. Neuroscience and Human Language
   151. Culture and Thought
   174. Gender and Language
   187. Variety in Language
   190A. Independent Study
   190B. Independent Study
   200. Issues in Second Language Acquisitions
   201. Cognitive and Neurolinguistics
   202. Language, Brain, and Human Behavior
   205. Semiotics and Linguistics
   207S. Semantics
   213. Linguistics and Law
   220S. Psycholinguistics
   250S. The Cultural Analysis of Discourse
   261S. Second Language Theory and Practice
   268. Brain and Language

B) Special Topics Courses, offered periodically:
   - Cultural Anthropology
     112. Current Topics in Linguistics
   - English
     119. Current Topics in Linguistics
   - Linguistics
     199. Special Topics
     199S. Special Topics Seminar
     299. Special Topics in Linguistics (Advanced)
     299S. Special Topics in Linguistics Seminar (Advanced)

III. Disciplinary Areas. Two (2) courses in one of the areas listed below. No course taken for credit as theory may be counted to fulfill the disciplinary concentration requirement. Qualifying courses are listed above under the heading "Linguistics Program Courses." Disciplines include:
   - Asian and African Languages and Literature
   - Cultural Anthropology
   - English
   - German
   - Philosophy
   - Psychology
   - Romance Studies
   - Slavic and Eurasian Studies
   - Spanish
IV. Junior/Senior Seminar in Linguistics. (Linguistics 215S). The capstone course for the major, usually taken in the junior or senior year.

V. Language Requirement. Two (2) semester courses in a single language other than English at or above the 100 level, excluding languages in which the student possesses native proficiency in speech and writing. Students with advanced placement credits or other evidence of foreign language proficiency are not exempted from this requirement. Advisor's approval is required in order to determine the language chosen for the major. The specific language courses are too numerous to list here. Advisors should also be consulted for specific approval of the language choice if it does not conform to the list below or in the case of a tri-lingual student: Arabic, Chinese, French, German, Greek, Hebrew, Hindi, Italian, Japanese, Korean, Latin, Polish, Portuguese, Russian, Spanish.

Departmental Graduation with Distinction
The Linguistics Program offers work leading to Graduation with Distinction. See the program chair.

Procedure for Selection of Students. An overall GPA of 3.3 and GPA of 3.5 in the major are required. The process for admission to the Graduation with Distinction program is initiated by the submission of a research proposal to a faculty advisor by the end of the second semester of the junior year.

Expected Product. The central requirement is an honors thesis prepared by the student under faculty supervision. The thesis generally consists of three to five chapters with an extensive bibliography.


Levels of Distinction. The honors thesis committee will decide to grant distinction and at what level (Distinction, High Distinction, Highest Distinction) based on the quality of the completed work.

Special Courses Required. The program consists of two courses. 1) Linguistics 190, Independent Study, taken in the fall semester of the senior year, is devoted to development of the honors thesis and includes close supervision of the writing stage of the project by a faculty member selected by the student. (This study can also be listed as a special topics course, Linguistics 199S, if it is titled "Honors Thesis.") 2) The second course is Linguistics 215S, Senior Seminar in Linguistics, which is the capstone course specifically designed for doing comparative research.

THE MINOR
Requirements: Five courses, in linguistics, three of which must be at the 100 level or above. Usually, two of these courses are Linguistics 101 and Linguistics 102.

Literature Program (LIT)
Professor Surin, Chair and Director of Undergraduate Studies; Professors Gaines, Hardt, Jameson, Kaplan, Lenoir, Lentricchia, Mignolo, Moi, Mudimbe, Radway, Saldivar, B. H. Smith, Stewart, Surin, Thomas, and Wiegman; Associate Professors Farred, R. Khanna, Lubiano, Viego, Willis, and Yoda; Assistant Professor Mottahedeh; Research Professor Dorfman. Affiliated faculty: Professors Burian (classical studies and theater studies), Clum (English and theater studies), Cooke (Asian and African languages and literature), Davis (classical studies), Powell (art history), Stiles (art history), Torgovnick (English), and Wharton (art history); Associate Professors Gheith (Slavic and Eurasian studies) and Moses (English); Associate Professor of the Practice S. Khan na (Asian and African languages and literature)

A major or minor is available in this program.
INTRODUCTORY

20S. Special Topics: Introduction to Literature. ALP Introduction to the study of literature and other forms of cultural expression, such as film. Different introductory approaches will be used in each section (for example, a systematic account of literary genres, a historical survey of ideas and forms of fiction, concepts of authorship and subjectivity, or of literary meaning and interpretation). More than one national literature or culture represented. May be taken twice for credit. Instructor: Staff. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

60S. Special Topics: Introduction to Interpretation and Writing. ALP This course introduces students to the basic skills of interpretation of texts and critical writing and argumentation. May be taken twice. Instructor: Staff. One course.

97FCS. Special Topics in the Focus Program. ALP Topics vary. Open only to students in the Focus Program. Instructor: Staff. One course.

154. Special Topics in Individual Authors. ALP Biographic, historical, and/or stylistic approaches to one or two individual authors, as well as critical debates concerning their work. Instructor: Staff. One course.

FUNDAMENTALS

90. Perspectives on Literary and Cultural Study. ALP, CCI An introduction to four areas of investigation vital to the Literature Program: film and video, cultural studies, literary studies, and theory. Team-taught by members of the program with expertise in these areas. Organized each term around a centralizing theme, such as the family, the trial, or celebrity, and aimed at familiarizing students with cross-cultural issues and values. Required for majors; open to nonmajors. Instructor: Staff. One course.

95. Special Topics in Language. SS Topics will vary and may include history of linguistics, classical and twentieth-century rhetoric or poetics, semiotics, the philosophy of language, structuralist and poststructuralist linguistics, postmodern language theory, and/or developments in fields such as cognitive science, artificial intelligence, and animal communication. Contributions of major figures, such as Saussure, Wittgenstein, Bakhtin, J. L. Austin, Foucault, and Derrida. Instructor: Staff. One course.

98. Introduction to the Study of Literature and Society. ALP, CCI Literature in relation to history, social situation, and culture. Development of modes of interpretation that juxtapose textual features and broader contextual concern. Readings from Western and non-Western sources representative of a number of periods and genres. Instructor: Lentricchia or Willis. One course. C-L: International Comparative Studies

99. Great Books in the Western Tradition. ALP A group of texts central to Western cultural identity from antiquity to the modern age, examined from a variety of critical and theoretical perspectives. Texts and topics vary according to the specializations of participating faculty, but in every case attention is given to such fundamental issues as the representation of 'human nature', the relations of individual and society, human and divine, male and female, the transmission and interrogation of ideas and values in literature, and the function of narrative itself in Western culture. Instructor: Burian, Janan, or Morton. One course.

FILM/VIDEO/DIGITAL STUDIES*

110. Introduction to Film. ALP Basic film theory and history of motion picture technology. Introduction to experimental, documentary, and narrative forms of Third World, European, and United States cinemas. Economics and aesthetics. Not open to students who have taken Theater Studies 132 or who have taken this course as FVD 130.

* See separate listing for the "Film/Video/Digital" program for production course offerings.

110BS. Capstone Course: Program in Film/Video/Digital. ALP, STS One course. C-L: see Film/Video/Digital 170S


112E. Indian Cinema. ALP, CCI, CZ, R One course. C-L: see Asian and African Languages and Literature 170; also C-L: Film/Video/Digital 111D, Visual Studies 105B


112G. Korean Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 175; also C-L: Film/Video/Digital 111G, Visual Studies 105F

112H. Japanese Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 171; also C-L: Film/Video/Digital 111F, Visual Studies 105C

112J. Modern Chinese Cinema. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 188; also C-L: Film/Video/Digital 111A, Visual Studies 105G

112K. Italian Cinema. ALP, CCI One course. C-L: see Italian 132; also C-L: Film/Video/Digital 111E, Visual Studies 126A, Theater Studies 172A

112L. Terror and German Cinema. ALP, CCI, CZ One course. C-L: see German 189; also C-L: Visual Studies 118C

112M. Contemporary Israeli Cinema. ALP, CCI, EI One course. C-L: see Asian and African Languages and Literature 161; also C-L: Film/Video/Digital 111H, Jewish Studies 140, Cultural Anthropology 161, Women's Studies 151

112S. Special Topics in National Cinema. ALP Understanding nationhood through film culture. Industrial base, reception history, and critical context for development of national cinemas. Exemplary films from a range of periods. Instructor: Staff. One course. C-L: Film/Video/Digital

113. Movies of the World/The World of Movies. ALP, CCI, STS History and theory of film and video technology across nations; postcolonial patterns and their electronic and mechanical transmission; economics of distribution, reception, exhibition, and their relation to aesthetics. The first world defined against the second and third by means of cultural product. Instructor: Mottahedeh. One course. C-L: English 122, German 156, Russian 113, Film/Video/Digital 112


115S. Sexualities in Film and Video. ALP The variety of ways sexualities are represented in current mainstream and avant-garde film and video art. Topics include voyeuristic, narcissistic, and other perverse pleasures; modes of representing bodies, genders, and desires (especially gay and lesbian ones) in relation to national and subcultural identities.
Readings in film theory and the history of film technology, as well as related literary and critical texts. Instructor: Clum, Metzger, or Gaines. One course. C-L: English 124S, Film/Video/Digital 115S, Visual Studies 121CS, Study of Sexualities

116. Studies in Film History. ALP One course. C-L: see English 185; also C-L: Theater Studies 172, Film/Video/Digital 105, Visual Studies 115A


120AS. Special Topics in Television Genres. ALP Close study of one or more mainstream television genres, such as the sitcom, soap opera serial, cop show, game show, network news show, or the "made for TV" movie. Instructor: Staff. One course. C-L: Film/Video/Digital

120BS. Special Topics in Film. ALP Close study of a major genre, period, or director. Instructor: Staff. One course. C-L: Film/Video/Digital

120C. Conflict, Conflict Resolution, and Film. ALP, CCI, SS One course. C-L: see Film/Video/Digital 108; also C-L: English 186A, Political Science 156, Public Policy Studies 172, Visual Studies 117H

120E. Introduction to Documentary Film. ALP, CCI One course. C-L: see Film/Video/Digital 102; also C-L: Art History 122, Documentary Studies 107, Visual Studies 117C

120F. Film Genres. ALP One course. C-L: see Film/Video/Digital 106; also C-L: English 186B, Art History 136, Visual Studies 117F

120G. American Film Comedy. ALP One course. C-L: see Film/Video/Digital 107; also C-L: English 186C, Visual Studies 117G

GENDER STUDIES

123. Special Topics in Women Writers. ALP Issues of gender and representation in works by women from the Middle Ages to the modern period. Concentration on specific periods, areas, or themes. Relationship of women's literature to the other arts, political practices, and social developments. Instructor: Staff. One course. C-L: Women's Studies

124. Selected Topics in Feminist Studies. Topics vary each semester. Instructor: Staff. One course.

124S. Selected Topics in Feminist Studies. Seminar version of LIT 124. Instructor: Staff. One course.

125. Special Topics in Gender and Sexuality. ALP Different literary and/or theoretical approaches to questions of sex, gender, and sexuality. Instructor: Staff. One course. C-L: Women's Studies

125AS. Masculine Anxiety and Male-Male Desire in Drama and Film Since 1950. ALP, CCI One course. C-L: see Theater Studies 179S; also C-L: English 175S, Visual Studies 128GS

125S. Special Topics in Gender and Sexuality. ALP Seminar version of Literature 125. Instructor: Staff. One course.
184S. Feminist Classics. ALP, CCI The classics of English and French feminist thought from three different periods: 1790-1810; 1860-1880; 1920-1950. The major feminist works of Mary Wollstonecraft, John Stuart Mill, Virginia Wolfe and Simone de Beauvoir read alongside other relevant literary and philosophical texts: Wollstonecraft, for example, read with Descartes, Rousseau, Hegel and Madame de Stael. Instructor: Moi. One course. C-L: Study of Sexualities

STUDIES IN CULTURE

100. Introduction to Cultural Studies. ALP Basic theoretical approaches to high and low culture—Bourdieu and Adorno, the Frankfurt School and the Birmingham Center for Contemporary Cultural Studies; Third World and feminist approaches; the avant-garde and subcultural resistance. Analysis of sport and leisure, film and photography, law and the arts, popular and classical music, painting and advertising imagery. Instructor: Staff. One course. C-L: English 101B, Visual Studies 121E, Film and Video

131ES. Ethical Stages. ALP, EI, R, W One course. C-L: see Theater Studies 186S

131S. Special Topics in Culture and the Arts. ALP Literature in relation to the plastic and visual arts, architecture, and photography. Topics will vary according to the instructor, for example: modernism and postmodernism, the avant-garde, identity, and nationalism in the art of a given period. Instructor: Staff. One course.

132. Special Topics in the Study of Literature in Relation to Other Disciplines. ALP Lecture version of Literature 132S. Instructor: Staff. One course.

132AS. Radio: The Theater of the Mind. ALP, CZ One course. C-L: see Theater Studies 107S; also C-L: Music 122S, English 134AS

132BS. Travel, Gender, and Power. One course. C-L: see Cultural Anthropology 191QS; also C-L: Asian and African Languages and Literature 157S, Women's Studies 181S

132C. History of the Museum. ALP, CCI, CZ, R One course. C-L: see Visual Studies 172; also C-L: International Comparative Studies

132S. Special Topics in the Study of Literature in Relation to Other Disciplines. ALP A comparative approach to the study of literature that draws on the methods and materials of other disciplines, such as sociology, history, anthropology, or philosophy. Focus on the methods of interdisciplinary study. Contents vary with instructors. Instructor: Staff. One course.

133A. Feminism and Visual Culture. ALP, CCI, CZ One course. C-L: see Visual Studies 180; also C-L: Women's Studies 175

133B. Experimental Art and Its Ethics since 1945. ALP, CCI, CZ, EI One course. C-L: see Art History 168; also C-L: Women's Studies 168, International Comparative Studies 101A, Ethics

133C. Global Performance from late 1950s to the Present. ALP, CCI, CZ, EI One course. C-L: see Visual Studies 181; also C-L: English 172C, Information Science and Information Studies 175, Theater Studies 175A, Women's Studies 176

133ZS. Special Topics in Culture and the Arts. ALP Literature in relation to the plastic and visual arts, architecture, and photography. Topics will vary according to the instructor, for example: modernism and postmodernism, the avant-garde, identity, and nationalism in the art of a given period. Instructor: Staff. One course.

141. International Popular Culture. ALP, CCI Basic concepts in critical theory; folk vs. mass culture, appropriation, resistance, hegemony, as studied through Japanese, Chinese, Australian, British, East Indian, and Latin American popular forms. American imperialism and the exportation of mass forms juxtaposed with international reception of popular fiction, characters, music, and television programs. Instructor: C. Davidson, Gaines, Radway, or Willis. One course. C-L: Visual Studies 121F, Latin American Studies, International Comparative Studies, Film/Video/Digital
143. Problems in Global Culture. ALP, CCI The study of cultural production from across the world, with a special emphasis on mass media, fiction, and literature. A basically comparatist, multigenre approach. Instructor: Dorfman. One course. C-L: Film/Video/Digital

143S. Problems in Global Culture. ALP, CCI Seminar version of Literature 143. Instructor: Staff. One course. C-L: Film/Video/Digital

145S. Special Topics in Science and Culture. ALP Approaches to the question of science and technology in a cultural context. Readings by scientists and scholars of science and society. Instructor: Staff. One course. C-L: Information Science and Information Studies

146S. Topics in Modern Literature and Culture. ALP, CCI One course. C-L: see Italian 155S

151G. The Melancholy of Art: Passages of Time in European Literature and Cinema, 1819-2000. ALP, CCI One course. C-L: see English 134; also C-L: German 174

151K. The French Love Story. ALP, CCI One course. C-L: see French 192

161AD. Latin American Literature in Translation. ALP, CCI Foundational and recent texts, crucial themes, obsessions, genres and stylistic strategies of Latin American culture. Readings include canonical authors such as Sarmiento, Garcia Marquez, Lispector, Cortazar; recent writers who address contemporary issues. Ethical and political dilemmas will be constantly examined. Instructor: Dorfman. One course. C-L: International Comparative Studies 131CD, Spanish 121AD

163J. German Jewish Culture from the Enlightenment to the Present. ALP, CCI, CZ One course. C-L: see German 187; also C-L: Jewish Studies 162

163Q. The Palestinian-Israeli Conflict in Literature and Film. ALP, CCI, CZ, EI One course. C-L: see Asian and African Languages and Literature 183; also C-L: Jewish Studies 132

165F. Trauma and Passion in Korean Culture. ALP, CCI One course. C-L: see Asian and African Languages and Literature 167; also C-L: International Comparative Studies 120C

186A. Marx, Nietzsche, Freud. CCI, CZ, SS One course. C-L: see German 186; also C-L: Philosophy 186, Political Science 195

186AD. Marx, Nietzsche, Freud. CCI, CZ, EI, SS One course. C-L: see German 186D; also C-L: Philosophy 186D, Political Science 195D

LITERARY STUDIES

101. Introduction to the Art of Reading. ALP An introduction to the reading and interpretation of literary texts, along with an introduction to the major approaches in literary theory. Instructor: Lentricchia or Moi. One course.

131C. Criminality of Art. ALP One course. C-L: see Theater Studies 176; also C-L: English 134B, Visual Studies 128F

132A. The Existentialist Imagination. ALP, CZ, EI One course. C-L: see German 183

150S. Special Topics in Literary Movements. ALP Historical, theoretical, and/or formal approaches to literary movements in different periods and cultures. Instructor: Staff. One course.

151BS. Popular Fictions. ALP Three popular genres, science fiction/fantasy, the western, and detective fiction, and how they reflect aspirations and cultural anxieties about matters such as gender. Open to juniors and seniors only. Instructor: Willis. One course. C-L: English 171BS, Women's Studies 172S

151C. Contemporary Fiction. ALP, W One course. C-L: see English 171A

151E. Romantic Fairy Tales: Literary and Folk Fairy Tales from Grimms to Disney. ALP, CCI, CZ One course. C-L: see German 173; also C-L: English 146, International Comparative Studies 183A
151FS. Utopian Writing. ALP, CCI The various historical and theoretical expressions of Utopia will be examined across a range of texts drawn from art, architecture, film, and literature. Ethical issues and problems attached to traditional utopias will be considered against the radical politics of utopia as negation or transformation of existing society. Instructor: Staff. One course.

151HD. Types of Recent Fiction. ALP Includes types such as faux memoir, dystopian novel, satire, realism in its high, middle, and low mimetic modes, the international political novel, faux essay, and experimental fictions for which literary criticism has yet to invent an adequately descriptive terminology. Focus on the works of George Orwell, Norman Mailer, Graham Greene, Raymond Carver, John Cheever, Thomas Bernhard, Saul Bellow, John Barth, and Donald Barthelme, with emphasis on ways in which a writer's artistic power recreates and reveals freshly subjects taken for granted. The novel as a special and disturbing way of knowing. Instructor: Lentricchia. One course. C-L: English 163CD

151J. Melodrama East and West. ALP, CCI One course. C-L: see Asian and African Languages and Literature 179; also C-L: Women's Studies 179, International Comparative Studies 170A, Visual Studies 105E

151S. Special Topics in Literary Genres. ALP Studies in one or more literary genres or subgenres, such as the novel, drama, poetry, or the documentary novel, epic poetry, love lyrics, modernist drama, and so on. Focus on questions of genre and form, but other themes discussed may vary widely. Instructor: Staff. One course.

152S. Love, Marriage, and Adultery in Nineteenth Century European Literature. ALP, CCI, EI Love and marriage in European literature in the nineteenth century. Classical texts by authors such as Goethe, Laclos, Stael, Austen, Balzac, Flaubert, Ibsen, Strindberg, Tolstoy and others from a literary and philosophical point of view. Ethical dilemmas concerning marriage and sexuality. Special focus on the institution of marriage, dominant theories and ideologies of love and sexuality, and women's situation. Instructor: Moi. One course. C-L: Study of Sexualities

154S. Special Topics in Individual Authors. ALP Seminar version of Literature 154. Biographic, historical, and/or stylistic approaches to one or two individual authors, as well as critical debates concerning their work. Instructor: Staff. One course.


163G. The Devil's Pact: Faust and the Faust Tradition. ALP, CCI, EI One course. C-L: see German 170; also C-L: English 157, Ethics

AREA STUDIES

161. Special Topics in Third World or Postcolonial Literature and Cultures. Colonial and postcolonial literatures of India, New Zealand and Australia, Canada, Francophone and Anglophone Africa, the Caribbean, North and South America. Organized according to trends, topics, and genres. Instructor: Ferraro, Moses, or Willis. One course. C-L: International Comparative Studies

161S. Special Topics in Third World or Postcolonial Literature and Cultures. Seminar version of Literature 161. Instructor: Ferraro, Moses, or Willis. One course. C-L: International Comparative Studies

162AS. Social Facts and Narrative Representations. ALP Story telling as it establishes, relies on, and transforms socially recognized categories—gender, class, race, sexual orientation, and region. Narrative theory; examples from written fiction, film, and television. Instructor: Lubiano. One course. C-L: African and African American Studies 162AS
162B. The Idea of Latin America. CCI, CZ One course. C-L: see Spanish 127; also C-L: Latin American Studies

162Z. Special Topics in Literature and National Cultures, Ethnicity, Race. ALP, CCI, CZ Literature as a part of specific national cultures; questions such as: How does literature articulate conceptions of nationality, ethnicity, and race? Does literature have a color? What is the relationship between national languages, dialects, and ethnic languages? What role does literature as an institution play in the constructions of nationhood? Instructor: Staff. One course. C-L: International Comparative Studies

162ZS. Special Topics in Literature and National Cultures, Ethnicity, Race. ALP, CCI, CZ Seminar Version of Literature 162Z. Instructor: Staff. One course. C-L: International Comparative Studies

163B. Classics of Western Civilization: The German Tradition, 1750-1930. ALP, CCI, CZ One course. C-L: see German 182; also C-L: English 148, History 179A, Political Science 134

163F. Vocation, Professionalism, Ethics: Conflicted Middle-Class Subjectivity in the Novel 1800-1924. ALP, CZ, EI One course. C-L: see German 185; also C-L: English 149, Ethics

163HS. The Middle East through Historical Literature. ALP, CCI, CZ One course. C-L: see Turkish 105S; also C-L: Islamic Studies

163K. Jewish Berlin. ALP, CCI, CZ, EI One course. C-L: see German 196C; also C-L: Jewish Studies 163, International Comparative Studies

163MS. The Middle East in Popular Culture. CCI, CZ, SS One course. C-L: see Cultural Anthropology 191AS; also C-L: Asian and African Languages and Literature 158S

164BS. Special Topics in German Literature. ALP, CCI Topics in German Literature. Instructor: Staff. One course.

165A. Chinese Literature and Culture in Translation. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 172S

165B. Representing the Holocaust. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 156; also C-L: Religion 161K, Jewish Studies 130

165C. Introduction to Asian and African Literature. ALP, CCI One course. C-L: see Asian and African Languages and Literature 121; also C-L: African and African American Studies 121

165E. Korean Literature in Translation. ALP, CCI One course. C-L: see Asian and African Languages and Literature 163

ADVANCED UNDERGRADUATE STUDIES

181A. Marxism and Society. SS A critical appraisal of Marxism as a scholarly methodology for understanding human societies. The basic concepts of historical materialism, as they have evolved and developed in historical contexts. Topics include sexual and social inequality, alienation, class formation, imperialism, and revolution. Core course for the program in Marxism and Society. Instructor: Staff. One course. C-L: Cultural Anthropology 139, Education 139, History 186, Sociology 139, International Comparative Studies

181B. Marxism and Culture. ALP Capstone seminar for Marxism and Society certificate students. A reconsideration of Marxist theories of culture and ideology in the light of contemporary developments in politics and ethics and in contemporary art. Various national contexts compared in this respect; problems of high literature and mass culture. Enrollment limited to students completing the certificate. Prerequisite: Literature 181A (Marxism and Society core course). Instructor: Staff. One course.

182. Special Topics in Theory. ALP An advanced investigation of major concepts and principles in literary and/or cultural theory. Contents and methods vary with instructors. Instructor: Staff. One course.

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182AS. Existentialism Between Cultures. ALP, CCI, EI Post-war existentialism in France and Britain in literature and philosophy, focusing on the ethics of existentialism (in particular the ethical consequences of the existentialist understanding of freedom), and the cultural difference between French and British forms of existentialism. Writers such as Sartre, deBeauvoir, Camus, D. Lessing, Murdoch, Osborne, A. S. Byatt. Instructor: Moi. One course. C-L: English 171GS

183. Special Topics in Research and Theory. ALP, R An advanced seminar in the development of research strategies and techniques. Contents and methods vary with instructor. Instructor: Staff. One course.

191. Honors Thesis I. ALP, R, W First semester of a two-semester sequence, in which Literature majors begin the year-long honors program. No credit given for Literature 191 without completion of Literature 192. Does not count towards the ten Literature courses required for the major. Instructor: Staff. One course.

192. Honors Thesis II. ALP, R, W Continuation of Literature 191 in which Literature majors finish the year-long honors program. Does not count towards the ten Literature courses required for the major. Prerequisite: Literature 191. Instructor: Staff. One course.

STUDY AWAY FROM DUKE

52. Duke-Administered Study Abroad: Special Topics in Literature. Topics differ by section. Instructor: Staff. One course.

195. Special Topics in World Media. ALP, CCI Studies in the media and society in a national or international setting; offered only in a Duke study abroad program. Instructor: Staff. One course.

196. Special Topics in World Literature and Culture. ALP, CCI Studies in literature and culture in a national or comparatist mode; offered only in a Duke study abroad program. Instructor: Staff. One course.

197S. Special Topics in the United States Culture Industries. ALP, R, W An historical and contemporary survey of genre applications in film, television, gaming, and other United States culture industries, from production, marketing, exhibition, and reception perspectives. Theoretical genre concepts integrated with real world practical experience. Primary research in cultural archive resulting in substantive paper. Open only to students enrolled in the Duke in Los Angeles program. Instructor: Thompson. One course. C-L: English 196S, Film/Video/Digital 121S

INDEPENDENT STUDY AND SENIOR/GRADUATE COURSES

199. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Instructor: Staff. One course.

199A. Independent Study. Non-research directed study on a previously-approved topic under the direction of a faculty member, resulting in an academic product. Consent of instructor required. Instructor: Staff. One course.


210S. Basic Concepts in Cinema Studies. ALP Review of theory, methodology, and debates in study of film under three rubrics: mode of production or industry; apparatus or technologies of cinematic experience; text or the network of filmic systems (narrative, image, sound). Key concepts and their genealogies with the field: gaze theory, apparatus theory, suture, indexicality, color, continuity. Instructor: Mottahedeh. One course. C-L: Film/Video/Digital
211S. **Theory and Practice of Literary Translation.** ALP, CCI, W Linguistic foundations, historical roles, contemporary cultural and political functions of literary translation. Readings in translation theory, practical exercises and translation assignments leading to a translation project. Instructor: Burian. One course. C-L: Islamic Studies

212S. **Film Feminisms.** ALP, CCI, CZ Philosophical debates and approaches to the female form in film theory and history. Phenomenology, cultural studies, Marxism, psychoanalysis, structuralism, post-structuralism, as well as gaze theory, apparatus theory, and feminist film theory as they approach readings of the body, subjectivity and identity in cinema. Questions of spectatorship and the gendered subject. Screening and discussion of Hollywood and European avant garde films key to early debates, and of international films central to debates around the gendered subject and representation in modernity. Interrogation of feminist approaches to national cinemas. Instructor: Mottahedeh. One course. C-L: Women's Studies

212S, Film/Video/Digital

220. **Foundations in Feminist Theory.** One course. C-L: see Women's Studies 220

225S. **Teaching Race, Teaching Gender.** CCI, SS One course. C-L: see African and African American Studies 297S; also C-L: Women's Studies 297S, History 297S

233S. **Performance Studies.** ALP One course. C-L: see Theater Studies 233S

253S. **Special Topics in Literature of the Modern Era.** ALP Seminar version of Literature 253. Instructor: Staff. One course.

255. **Special Topics in Literature.** ALP Topics vary by semester. Instructor: Staff. One course.

255S. **Special Topics in Literature.** ALP Topics vary each semester. Instructor: Staff. One course.

260. **Twentieth-Century Reconceptions of Knowledge and Science.** ALP, STS Key texts and crucial issues in contemporary history, sociology, and philosophy of science—or, as the assemblage is sometimes called, 'science studies.' Focus on theoretical and methodological problems leading to (a) critiques of classical conceptions of knowledge and scientific truth, method, objectivity, and progress, and (b) the development of alternative conceptions of the construction and stabilization of knowledge and the relations between scientific and cultural practices. Readings include L. Fleck, K. Popper, P. Feyerabend, T. Kuhn, S. Shapin and S. Schaffer, and B. Latour. Instructor: Herrnstein Smith. One course. C-L: English 280, Information Science and Information Studies

261S. **Critical Studies in New Media.** ALP, R, SS, STS One course. C-L: see Information Science and Information Studies 250S; also C-L: Art History 250S, Visual Studies 250AS, Film and Video

262. **Body Works: Medicine, Technology, and the Body in Early Twenty-first Century America.** ALP, CCI, STS One course. C-L: see Information Science and Information Studies 270; also C-L: Philosophy 270

270. **Consciousness and Modern Society.** CCI, CZ, EI One course. C-L: see German 270; also C-L: International Comparative Studies

279. **Special Topics in Film.** ALP Selected film directors with attention to their visual style. Auteur theory or authorship as a way of understanding the cinematic work of European, American, Asian, or African masters of the form. Instructor: Lentricchia. One course.

280S. **Literary Guide to Italy.** ALP, CCI, CZ One course. C-L: see Italian 221S; also C-L: German 221S

281. **Paradigms of Modern Thought.** ALP, CZ Specialized study of the work of individual thinkers who have modified our conceptions of human reality and social and cultural history, with special emphasis on the form and linguistic structures of their texts considered as 'language experiments.' Topics vary from year to year, including: Marx and Freud, J.P. Sartre, and Walter Benjamin. Instructor: Jameson, Moi, Mudimbe, or Surin. One course.
284. The Intellectual as Writer. ALP, CZ History and theory of the literary role of the intellectual in society (e.g., in Augustan Rome, the late middle ages, the Renaissance, America, Latin America). Instructor: Jameson, Lentricchia, Moi, Mudimbe, or Surin. One course.

284S. Antonio Gramsci and the Marxist Legacy. CCI, CZ, SS One course. C-L: see Italian 230S

286. Topics in Legal Theory. A consideration of those points at which literary and legal theory intersect (e.g., matters of intention, the sources of authority, the emergence of professional obligation). Instructor: Staff. One course.

287BS. Ethnohistory of Latin America. CCI, CZ, R, SS One course. C-L: see Cultural Anthropology 287S; also C-L: History 287BS

287S. Space, Place, and Power. CCI, SS One course. C-L: see Cultural Anthropology 285S; also C-L: Asian and African Languages and Literature 230S, Women's Studies 225S

289. Topics in Feminist Theory. Instructor: Moi or Radway. One course.

292. Topics in Non-Western Literature and Culture. ALP, CCI, CZ Instructor: Mudimbe. One course.

293. Special Topics in Literature and History. ALP, CZ Relationship of literary texts to varieties of historical experience such as wars, periods of revolutionary upheaval, periods of intense economic growth, "times of troubles," or stagnation. Literary texts and historical content posed in such formal ways as the theoretical problem of the relationship between literary expression and form and a range of historical forces and phenomena. Instructor: Jameson or Kaplan. One course.

295. Special Topics in Representation in a Global Perspective. ALP, CCI Problems of representation approached in ways that cross and question the conventional boundaries between First and Third World. Interdisciplinary format, open to exploration of historical, philosophical, archeological, and anthropological texts as well as literary and visual forms of representation. Instructor: Dorfman, Jameson, or Mignolo. One course.

297. Topics in Cultural Studies. ALP Instructors: Gaines, Radway, Surin, and staff. One course.

298. Special Topics. Subjects, areas, or themes that cut across historical eras, several national literatures, or genres. Instructor: Staff. One course.

THE MAJOR

The literature major offers a unique interdisciplinary approach to the study of literature, film, and cultural forms. It enables students to engage in cross-cultural analysis both in a global (colonial and postcolonial) context and within one national space. It also aims to train students to develop a sophisticated appreciation of the ways questions of race, class, gender, and sexuality arise in different historical and social contexts.

The major is comprised of ten courses, nine of which must be at the 100 level or higher. All students must take Literature 90, a general introduction to the methods and concepts that define the interdisciplinary nature of the major; and three core courses in each of the three major areas that constitute the major: Literature 100, Introduction to Cultural Studies, Literature 101, Introduction to the Art of Reading, and Literature 110, Introduction to Film.

The remaining courses may be chosen to develop a focus on one of the core areas (literature, cultural studies, or film) or to develop a comparatist sampling that draws on all three areas. Students who choose film as a focus may wish to consider the Certificate Program in Film/Video/Digital.

Additionally, all students must take at least one film or literature course with a world or national focus; and at least one course devoted to the study of race, class, gender, or sexuality.

Of the remaining four elective courses, all must be Literature courses, i.e., excluding courses in film or video production.
THE MINOR

The Minor in Literature aims to be a humanities-based interdisciplinary meeting place for Duke undergraduates. It offers students majoring in other disciplines a systematic exposure to the Literature Program’s unique approach to literature, film, and cultural forms. This minor is particularly suitable for majors in the social or natural sciences who wish to concentrate on film or be conversant with contemporary cultural and intellectual debates. It also enables majors in other languages and literatures to explore theoretical and interdisciplinary issues of broad relevance to the humanities in general. Students taking the Literature minor can choose to explore both broad cross-cultural analysis and critical investigation of questions relating to race, class, gender, and sexuality; or they may choose to focus on a particular area such as film studies or image studies.

Requirements. The minor is comprised of five courses, four of which must be at the 100 level or higher. All students must take Literature 90 and one of the core courses (Literature 100, or Literature 101, or Literature 110). The remaining three elective courses must all be courses in the Literature Program (i.e., excluding courses in film production or video production).

Departmental Graduation with Distinction

To receive Graduation with Distinction students must satisfy University GPA requirements and submit an application by the beginning of the fall semester of their junior year. They must have a minimum GPA of 3.2 in the major and an honors thesis grade of B+ or above.

Students accepted into the distinction program must take the Honors Seminar sequence (Literature 191 and 192). A final grade will be issued at the end of the spring term. (A grade of "Z" will be issued at the end of the fall term.) Students must write an honors thesis and submit it by the official submission date. They will defend the thesis before a three-member committee consisting of the thesis advisor, the Honors Program Coordinator, and a third reader chosen from among the members of the Literature faculty and affiliated faculty. The committee determines the grade for the thesis, which becomes the grade of the Honors Seminar sequence. The two honors seminars do not count towards the ten Literature courses required for the major.

Marine Biology

For courses in marine biology, see Biology, Environment (Nicholas School), and the University Program in Marine Sciences.

Marine Science and Conservation Leadership

Professor Van Dover, Director

A certificate, but not a major, is available in this program.

This certificate program offers all undergraduates at Duke University the opportunity to supplement their majors with studies of leadership in marine science and conservation. The Program is designed to expand the academic breadth of Duke undergraduates who wish to pursue graduate degrees in biology, environmental science, social science, and policy, as well as professional careers in medicine and other disciplines. It seeks to stimulate interdisciplinary studies, including the human dimension, using marine systems as a model. It also fosters leadership skills in communication, management, values, and ethics. Students apply biological and ecological principles to the study of marine organisms and develop and evaluate solutions to conservation challenges. They are encouraged to think reflectively about their roles as citizens and leaders and the philosophical, ethical, and practical positions they will face in these roles.

The Certificate Program requires a residential component at Duke’s Marine Laboratory in Beaufort, NC, for one full academic semester (fall or spring) or both summer terms. All Certificate students thus become Marine Lab Scholars and are eligible to become Rachel
Carson Scholars. These Scholars Programs offer additional resources and research and service opportunities for undergraduate students. Marine Lab residence features opportunities that bring Duke undergraduates together with local, regional, national, and international leaders in formal and informal settings, as well as special training sessions on leadership skills.

**COURSE OF STUDY**
The Marine Science and Conservation Leadership Program is rooted in marine science and conservation, but includes studies in a variety of disciplines – biology, earth and ocean sciences, economics, engineering, environmental sciences and policy, markets and management studies, philosophy, political science, public policy, religion, and theater studies. The introductory course on environmental sciences and policy introduces students to the integration of natural and social sciences and a means of evaluating an environmental issue and developing an effective solution. A capstone course is required of all students during the spring semester of their senior year.

**UNDERGRADUATE CERTIFICATE REQUIREMENTS**
The certificate requirements are: (1) a total of six courses: one introductory course (ENVIRON 25 or ENVIRON 101 with permission, for students who place out of ENVIRON 25), one leadership, ethics, management, or communication course, two marine science courses (one natural science and one social science), one marine conservation course, and one capstone course taken during spring of the senior year; (2) no more than three courses may originate in a single department; and (3) no more than two courses that are counted toward the Marine Science and Conservation Leadership Certificate may also satisfy the requirements of any major, minor, or other certificate program. Appropriate courses may come from the list below or may include other courses as approved by the Director. Acceptance into the Certificate Program does not guarantee enrollment in electives, with the exception of the Capstone Course.

**PROGRAM ENROLLMENT**
All students are eligible to enroll in the program. Enrollment must be done via the Duke Marine Laboratory website: [http://nicholas.duke.edu/marinelab/programs/certificate.html](http://nicholas.duke.edu/marinelab/programs/certificate.html).

**PROGRAM COURSES**

**Introductory Course**

**Environmental Sciences and Policy**
25. Introduction to Environmental Sciences and Policy
or
101. Integrating Environmental Sciences and Policy

**Leadership Ethics/Management/Communication Courses**

**Engineering**
108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks

**Markets and Management Studies**
120. Managerial Effectiveness

**Philosophy**
115. Applied and Environmental Ethics

**Political Science**
147D. Environmental Politics and Policies in the Developing World

**Public Policy Studies**
116D. Policy Choice as Value Conflict
140S. Women as Leaders
144S. Social Enterprise Development
146. Leadership, Development, and Organizations
147D. Environmental Politics and Policies in the Developing World

**Religion**
115BS. Buddhist Ethics
129. Religion and Science: Biology, Minds, and Souls

Theater Studies
100S. Communication, Improvisation, and Business

**Marine Science: Natural Science Courses**

**Biology**
10L. Marine Biology
53. The Dynamic Oceans
114L. Biological Oceanography
123. Analysis of Ocean Ecosystems
129L. Marine Ecology
150L. Physiology of Marine Animals
155L. Biochemistry of Marine Animals
156L. Sensory Physiology and Behavior of Marine Animals
176AL. Marine Invertebrate Zoology
218L. Barrier Island Ecology

**Cell Biology**
243. Respiratory Proteins and the Environment

**Earth and Ocean Sciences**
12. The Dynamic Oceans
102. The Fluid Earth
115. Waves, Beaches, and Coastline Dynamics
123. Hydrogeology
1878. Marine Geology of South Florida
215. Introduction to Physical Coastal Processes

**Environmental Sciences and Policy**
114L. Biological Oceanography
123. Analysis of Ocean Ecosystems
139L. Marine Ecology
176AL. Marine Invertebrate Zoology
218L. Barrier Island Ecology
243. Respiratory Proteins and the Environment

**Marine Science: Social Science Courses**

**Economics**
163. Economics of the Environment
163S. Economics of the Environment
270. Resource and Environmental Economics

**Environmental Sciences and Policy**
163. Economics of the Environment
175. Marine Policy
251D. International Conservation and Development
252. Sustainability and Renewable Resource Economics
270. Resource and Environmental Economics

**Public Policy Studies**
272. Resource and Environmental Economics

**Marine Conservation Courses**

**Biology**
109. Conservation Biology and Policy
125. Biology and Conservation of Sea Turtles
125L. Biology and Conservation of Sea Turtles
126. Marine Mammals
126L. Marine Mammals
127. Marine Megafauna

**Environmental Sciences and Policy**
127. Marine Megafauna
135. Biology and Conservation of Sea Turtles
135L. Biology and Conservation of Sea Turtles

**Senior Capstone Course**
**Environmental Sciences and Policy**
186S. Marine Science and Conservation Leadership Capstone: From Water to Washington and Back

**Special Topics Courses Offered Periodically**
**Leadership Ethics/Management/Communication**
**Public Policy Studies**
196. Border Crossing: Leadership, Value Conflicts, and Public Life

**Marine Science: Social Science**
**Environmental Sciences and Policy**
298. Ocean and Coastal Law and Policy

**University Program in Marine Sciences**
Professor Van Dover (environment), Director and Chair; Professor Rittschof (environment and biology), Director of Undergraduate Studies; Professors C. Bonaventura (environment and cell biology), Crowder (environment and biology), and Forward (environment and biology); Professor Emeritus Barber (environment and biology); Associate Professor Read (environment); Assistant Professor Campbell (environment) and Professor of the Practice Orbach (environment); Associate Professor of the Practice Kirby-Smith (environment); Research Professors J. Bonaventura (environment and cell biology) and Ramus (environment and biology); Research Scientist Shultz; Assistant Research Scientists K. Eckert (environment) and S. Eckert (environment); Visiting Assistant Professor Carlsson

The interdisciplinary program in marine sciences provides students with a unique opportunity to live and study at the Duke University Marine Laboratory for a full academic semester (fall or spring) or during two summer terms. The program emphasizes small class size, independent study, and integrated classroom, laboratory, and field experience. Students have daily access to modern scientific equipment, a specialized library, and the surrounding marine environment.

The Marine Lab serves students in the biological and environmental sciences as well as those in social science, humanities and a variety of other majors. Residential undergraduate courses are offered year-round (Fall, Spring, Summer Terms I and II). Fall and spring courses include Beaufort Signature Courses which offer students opportunities for extended travel with Duke faculty to places like France, Panama, Singapore, and Trinidad. Small class size and an island setting facilitate rewarding student-faculty interactions. For additional information and enrollment forms contact the Academic Services Office, Duke University Marine Lab, 135 Duke Marine Lab Rd., Beaufort, North Carolina 28516, 252-504-7502, ml_admissions@nicholas.duke.edu; or visit the Web site at http://www.nicholas.duke.edu/marinelab. Duke students in good standing and with adequate preparation are automatically accepted, but must notify the Admissions Office (ml_admissions@nicholas.duke.edu) of their intent to attend so their records can be appropriately coded for registration. Information on academic programs and financial assistance available at the Duke Marine Lab may be found by visiting the website at http://www.nicholas.duke.edu/marinelab.

**FALL SPRING, OR SUMMER COURSES AT BEAUFORT**

The courses below are described in the bulletin listings of the specified departments. See also the Duke University Official Schedule of Courses or the Duke Marine Lab website (http://www.nicholas.duke.edu/marinelab) for the current schedule of courses. For information on courses fulfilling requirements for specific majors (including biological anthropology and anatomy, biology, earth and ocean sciences, environmental sciences and policy), minors (including biology, chemistry, environmental sciences and policy), and programs (including pre-health and the Marine Science
and Conservation Leadership certificate) see the Marine Lab website’s Academic Programs section (http://www.nicholas.duke.edu/marinelab/programs) or consult the Director of Undergraduate Studies for the department.

**Biology**
- 10L. Marine Biology
- 109. Conservation Biology and Policy
- 114L. Biological Oceanography
- 123. Analysis of Ocean Ecosystems
- 125. Biology and Conservation of Sea Turtles
- 125L. Biology and Conservation of Sea Turtles
- 126. Marine Mammals
- 126L. Marine Mammals
- 127. Marine Megafauna
- 129L. Marine Ecology
- 130L. Coral Reef Ecology
- 1325. Marine Biodiversity
- 1335. Molecular Approaches to Questions of Physiology, Ecology, and Evolution in the Marine Environment
- 150L. Physiology of Marine Animals
- 155L. Biochemistry of Marine Animals
- 156L. Sensory Physiology and Behavior of Marine Animals
- 176AL. Marine Invertebrate Zoology
- 190. Research Independent Study
- 191. Research Independent Study
- 193T. Tutorial
- 197T. Tutorial
- 207AL. Experimental Tropical Marine Ecology
- 207BL. Marine Ecology of the Pacific Coast of California
- 207EL. Harmony in Brittany: French Use of Marine Environments
- 218L. Barrier Island Ecology
- 219L. Coastal Ecosystem Processes
- 254. Vertebrate and Invertebrate Endocrinology
- 295S. Special Topics Seminar
- 297. Research Independent Study

**Cell Biology**
- 210. Research Independent Study
- 243. Respiratory Proteins and the Environment

**Earth and Ocean Sciences**
- 191. Research Independent Study
- 192. Research Independent Study
- 193. Independent Study
- 194. Independent Study
- 195. Independent Study for Nonmajors
- 202. Beach and Island Geological Processes

**Environment**
- 114L. Biological Oceanography
- 123. Analysis of Ocean Ecosystems
- 127. Marine Megafauna
- 1325. Current Topics in Oceanography and Marine Biology
- 1335. Molecular Approaches to Questions of Physiology, Ecology, and Evolution in the Marine Environment
- 1345. Hands on Habitats: Life in Coastal Communities
- 135. Biology and Conservation of Sea Turtles
- 135L. Biology and Conservation of Sea Turtles
- 139L. Marine Ecology
COURSES AND ACADEMIC PROGRAMS

141S. Humans and Development of North Carolina Coasts
151L. Marine CSI - Conservation Forensics in the Marine Environment
175. Marine Policy
176AL. Marine Invertebrate Zoology
191. Research Independent Study
191A. Research Independent Study
192. Independent Study
224L. Coastal Ecosystem Processes
225. Coastal Ecotoxicology & Pollution
225L. Coastal Ecotoxicology and Pollution
243. Respiratory Proteins and the Environment
256S. Seminar in Ocean Sciences
267S. Conservation Biology of Marine Mammals
273. Marine Fisheries Policy
276. Marine Policy
298. Special Topics

Physics
53L. General Physics I
54L. General Physics II

Political Science
264. Marine Policy

Public Policy Studies
297. Marine Policy

Markets and Management Studies (MMS)
Professor Spennyer, Director

A certificate, but not a major, is available in this program. The Markets and Management Studies Certificate Program at Duke is designed to meet the needs of Duke undergraduates who wish to study business issues and functions in preparation for careers in business and management, banking, consulting, government, the non-profit sector, and related graduate fields. Courses in the program emphasize three integrated themes: (1) globalization and organizational innovations in the world economy; (2) the social determinants and consequences of new or changing technologies; and (3) the effect of cross-cultural and institutional factors on management and entrepreneurship. Students may take clusters of three courses that fall under the same areas of globalization, technology, or entrepreneurship.

In addition to offering courses and a certificate after completion of the requirements, the Markets and Management Studies Program makes a concerted effort to bring Duke undergraduates closer to the business world in a variety of ways. The program sponsors lecturers and career events. Professors of the practice teach the entrepreneurship, finance, and leadership courses. Students are invited to make use of the Markets and Management resource room (Sociology-Psychology Building) for meetings with faculty and other students in the program, and to consult relevant journals, magazines, and newspapers. Additional information can be obtained from the director or the program coordinator in the Markets and Management Studies Program office.

COURSE OF STUDY

Organizational studies in the social sciences provide an innovative, liberal arts approach to business education. The Markets and Management Studies Program is rooted in sociology, but it also includes studies in a variety of disciplines—economics, history, political science, public policy studies, ethics, and management science. Each course in the program deals in some way with the impact of different organizational forms on managing human resources, coordinating work, integrating technology, and using business networks in an increasingly competitive global economy. The four overarching learning objectives

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of the program are: bridging theory and research, teamwork, communication skills, and active learning.

CERTIFICATE REQUIREMENTS

The certificate requirements are: (1) a total of seven courses: three core courses, one of which is Markets and Management Studies 190, an integrative capstone course taken in the senior year, and four elective courses; (2) no more than three courses may originate in a single department; and (3) no more than two courses that are counted toward the Markets and Management Studies Certificate may also satisfy the requirements of any major, minor, or other certificate program.

PROGRAM ENROLLMENT

Only sophomores and juniors who have officially declared their major may enroll in the program. Enrollment must be done via the Markets and Management Studies web page: http://www.markets.duke.edu.

MARKETS AND MANAGEMENT STUDIES COURSES (MMS)

Core Courses

190. Markets and Management Capstone. R, SS Capstone course open only to students in the Markets and Management Studies Program. Includes review of major perspectives and concepts from the program's core courses, plus a team project involving business plans or alternatively a strategic plan to identify and resolve problems confronting actual companies, industries, and communities. Students also develop a case study research paper of a product, firm, industry, occupation, country, or region. Consent of Director of Markets and Management Studies Program required. Instructor: Gereffi, Jones, Nordgren, Reeves, Spenner, or Veraldi. One course.


Electives

120. Managerial Effectiveness. SS, STS Introduction to study of individual and group behavior within organized settings. Emphasis given to managerial strategies that enhance organizational effectiveness. Topics include leadership, motivation and reward systems; decision making, power and politics; conflict management, globalization, justice and ethics; and organization culture, structure and design. Special attention to critical assessment of new technological options in organizational settings with an aim to produce informed, ethical consumers and managers. Instructor: Staff. One course.

140. Ethics in Management. EI, SS The meaning of moral values and their application to effective management and the role of business in society. Basic ethical questions of beneficiary, justice, and rights. How various ethical theories apply to concrete issues such as the profit motive, insider trading, affirmative action, and employer/employee relations. Instructor: Hull. One course.

140S. Ethics in Management. EI, SS Seminar version of Markets and Management Studies. Instructor: Hull. One course.
147. Business in Literature. ALP, SS The image of business as presented in serious and popular literature; the impact such portrayals have on business and society. An understanding of the basic ideas behind novels and movies that present executives as heroes, ordinary people, and villains. Instructor: Hull. One course.

161. Marketing Management. SS, STS Introduction to current basic principles and concepts in marketing. Focus on Internet's impact on traditional marketing methods. Exposure to marketing concepts in settings such as: consumer goods firms, manufacturing and service industries, small and large businesses. Development and trends in strategic implications of the Internet for consumer behavior, business opportunities, and marketing strategies. Instructor: Staff. One course.

170. Integrated Marketing Communications. SS Theory of marketing communications and the nature and influence of communication strategies. Topics include impact of informational asymmetries, uncertainty, local culture, global branding, and the effects of technology on marketing communications. Marketing communications seen from perspective of social scientist and the corporate marketing manager. How technology communication changes have changed the way businesses communicate with customers and ways customers respond. Instructor: Reeves. One course.

175. Business of Sport. SS Basic principles of the sports marketing and television industry. Topics include: history of sports marketing and television; influence of consumer demographics and behavior; economics of sports on television including production, distribution, advertising and rights fees; role of corporate sponsorships and sports advertising; economics of new leagues, new sports channels. Why corporate sponsors invest in sports marketing; how different leagues and sports properties are structured and the subsequent impact on their respective economic models. Instructor: Stevenson. One course.

180. Entrepreneurial Opportunities and Finance. SS Evaluation of entrepreneurial opportunities including analysis of markets; management teams; business financial models; company valuation; competitive landscape; future growth; expected technology changes; leverage of projected financial model. Analysis of early stage business; review of potential investment. Leadership interaction between students, entrepreneurs and venture capital organizations. Prerequisite: Markets & Management Studies 85 and Sociology 159 or consent of the instructor. Instructor: Jones and Nordgren. One course.

182. Strategic Financial Management. SS Strategic financial issues confronting the firm. Basic problems of strategic direction for the firm with respect to external competitive environment and management of internal strategy processes. Tools and ideas to manage formulation and implementation of strategic choices for the firm. Study of firm's strategic position relative to rivals, the larger industry, and the customer. Prerequisite: Markets and Management Studies 85 and Economics 151 or Economics 181 or consent of instructor. Instructor: Veraldi. One course.

185. Managerial Finance. SS Concepts and processes of corporate finance; functions, technology and techniques of financial management. Topics include analysis of financial statements, ratio analysis and the statement of cash flows; capital budgeting; risk and return; stocks and bonds; cost of capital; financial institutions; securities markets and international finance. Not open to first year students, nor to students who have taken Markets and Management Studies 85. Instructor: Veraldi. One course.

Special Topics


100. Duke-Administered Study Abroad: Advanced Special Topics in Markets and Management Studies. CCI Topics differ by section. Instructor: Staff. One course.
195. Special Topics in Markets and Management Studies. Topics vary each semester. Instructor: Staff. One course.

195S. Special Topics Seminar in Markets and Management Studies. Topics vary each semester. Instructor: Staff. One course.

PROGRAM COURSES

Core Courses
Political Science
153. International Business Government Relations

Public Policy Studies
146. Leadership, Development, and Organizations

Sociology
142D. Organizations and Global Competitiveness
144. Technology and Organizational Environments
145. Nations, Regions, and the Global Economy
155. Organizations and Management
158. Markets and Marketing
159. The Sociology of Entrepreneurship

Elective Courses

Computer Science
181S. Computer Science Seminar

Cultural Anthropology
110. Advertising and Society: Global Perspective
110D. Advertising and Society: Global Perspective
116S. Advertising and Masculinity

Economics
122D. American Business History
151. Basic Finance and Investments
165. American International Economic Policy
181. Corporate Finance
183. Advanced Financial and Managerial Accounting
188. Competitive Strategy and Industrial Organization
189. Business and Government

Engineering
108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks

English
120. Advertising and Society: Global Perspective
120D. Advertising and Society: Global Perspective

History
143B. The Emergence of Modern Japan
158AD. American Business History

Philosophy
170. Business Ethics: The Debate Over Corporate Social Responsibility

Political Science
113. Issues of International Political Economy
158. Non-State Actors in World Politics
158D. Non-State Actors in World Politics
161. Business, Politics, and Economic Growth
167. International Law and International Institutions

Psychology and Neuroscience
115. The Psychology of Consumers (C,P)
138. Social Psychology of Business

Public Policy Studies
122. Who Owns the Press
144S. Enterprising Leadership
150. Policy, Philanthropy, and the Arts
150S. Policy, Philanthropy, and the Arts
165. American International Economic Policy
189. Business and Government

Sociology
110. A-E. Comparative Sociology: Selected Areas
114. Cybernetworks and the Global Village
126. The Challenges of Development
129. Gender, Work, and Organizations
141. Consuming Passions
155B. Organizations & Management in Global Capital Markets: an Ethical Perspective
156. Global Contexts of Science and Technology
160. Advertising and Society: Global Perspective
160D. Advertising and Society: Global Perspective
168. Business and Politics in American Society

Theater Studies
168S. Entrepreneurship and International Arts Management

Visual Studies
110E. Advertising and Society: Global Perspective
110FS. Advertising and Masculinity

Mathematics (MATH)
Professor Stern, Chair; Professor Saper, Associate Chair; Professor Allard, Director of Undergraduate Studies; Assistant Professor of the Practice C. Bray, Associate Director of Undergraduate Studies, Associate Professor of the Practice Blake, Supervisor of First-year Instruction; Professors Aspinwall, Beale, H. Bray, Bryant, Hain, Harer, H. Layton, Morrison, Pardon, Petters, Reed, Rose, Saper, Schaeffer, Schoen, Trangenstein, Venakides, and Zhou; Associate Professors Kraines, Mattingly, Pessler, and Witelski; Assistant Professors Huber, A. Layton, Maggioni, and Ng; Professors Emeriti Hodel, Kitchen, Moore, Smith, Warner, and Weisfeld; Associate Professor of the Practice Bookman; Assistant Research Professors Heymann, Lee, McKinley, Santoro, and Sharif; Adjunct Professors Bertozzi, Howard, Kimbell, Shearer, and Wahl; Lecturer Tomberg; Lecturing Fellow Chuang

A major or minor is available in this department.

25L. Laboratory Calculus and Functions I. QS A study of functions with applications, and an introduction to differential calculus, with a laboratory component. Topics include a review of algebra and functions, mathematical modeling with elementary functions, rates of change, inverse functions, logarithms and exponential functions, the derivative, graphical interpretations of the derivative, optimization, related rates. Not open to students who have credit for Mathematics 19 or 31 or 31L. Instructor: Staff. One course.

26L. Laboratory Calculus and Functions II. QS A continuation of Mathematics 25L. Topics include zeros of functions, antidifferentiation, initial value problems, differential equations, Euler's method, slope fields, review of trigonometry, modeling with trigonometric functions, Riemann sums, the Fundamental Theorem of Calculus, integration by substitution, integration by parts, separation of variables, systems of differential equations. Students who complete this course can enroll in Mathematics 32L. Not open to students who have credit for Mathematics 31 or 31L. Prerequisite: Mathematics 25L. Instructor: Staff. One course.

31. Introductory Calculus I. Credit awarded on the basis of national/international examinations in mathematics such as College Board, International Baccalaureate, British Advanced Level. Equivalent to Mathematics 31L as a prerequisite. Instructor: Staff. One course.
31L. Laboratory Calculus I. QS Introductory calculus with a laboratory component. Emphasis on laboratory projects, group work, and written reports. Differentiation, transcendental functions, optimization, differential equations, numerical approximations, Euler's method, the Fundamental Theorem, separation of variables, slope fields, and mathematical modeling. Not open to students who have credit for Mathematics 25L or 26L. Instructor: Staff. One course.

32. Introductory Calculus II. QS Transcendental functions, techniques and applications of integration, indeterminate forms, improper integrals, infinite series. Not open to students who have had Mathematics 32L or 41. Prerequisite: Mathematics 31. Instructor: Staff. One course.

32L. Laboratory Calculus II. QS Second semester of introductory calculus with a laboratory component. Emphasis on laboratory projects, group work, and written reports. Methods of integration, applications of integrals, functions defined by integration, improper integrals, introduction to probability and distributions, infinite series, Taylor polynomials, series solutions of differential equations, systems of differential equations, Fourier series. Not open to students who have had Mathematics 32 or 41. Prerequisite: Mathematics 26L or 31L or consent of instructor. Instructor: Staff. One course.

32X. Introductory Honors Calculus II. QS Similar to Mathematics 32, but faster paced and more challenging. Open to students who score at least 750 on the SAT Mathematics Aptitude Test. Instructor: Staff. One course.

41. One Variable Calculus. QS Quickly reviews differential calculus and then covers integral calculus and infinite series. Designed for first-year students who have had a year of calculus in high school and have Mathematics SAT scores of 680 or above. Not open to students who have had Mathematics 32 or 32L. Instructor: Staff. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


61. Perspectives on Science I. STS Weekly seminars showcasing research directions that use quantitative methods. Interviews and library research leading to a web-based report and oral presentation. Projects include a focused quantitative example and an analysis of the broader impact or development of the field including historical developments and impact on society. Emphasis on biological and medical sciences. Open only to students in the ADVANCE Program. Prerequisite: Mathematics 31 and 31L or consent of instructor. Instructor: Staff. Half course.

62. Perspectives on Science II. STS Similar to Mathematics 61, but with emphasis on engineering, physical, and social sciences. Open only to students in the ADVANCE Program. Prerequisite: Mathematics 32 or 32L, or consent of instructor. Instructor: Staff. Half course.

65S. Cryptography and Society. QS, STS, W Introduction to basic ideas of modern cryptography with emphasis on history and mathematics of encryption, applications in daily life, and implications for the individual and society. Topics may include: mathematical tools needed to analyze cryptosystems, including public key and stream ciphers; zero-knowledge protocols; attacks on "real-life" cryptosystems such as Enigma and the Data Encryption Standard; digital signatures, secure web connections; cryptography, free speech and copyright/fair use issues; applications to electronic communications and electronic commerce; privacy, computer security, and law enforcement; limitations and failures of modern cryptography. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Mathematics. Topics differ by section. Instructor: Staff. One course.

102. Multivariable Calculus. QS Gaussian elimination, matrix algebra, determinants, linear independence. Calculus of several variables, chain rule, implicit differentiation.
Optimization, first order conditions, Lagrange multipliers. Integration of functions of several variables. Prerequisite: Mathematics 32, 32L or 41. Not open to students who have taken Mathematics 103. Instructor: Staff. One course.

103. Intermediate Calculus. QS Partial differentiation, multiple integrals, and topics in differential and integral vector calculus, including Green's theorem, the divergence theorem, and Stokes's theorem. Not open to students who have taken Mathematics 102. Prerequisite: Mathematics 32, 32L, or 41. Instructor: Staff. One course.

103X. Honors Intermediate Calculus and Linear Algebra. QS Similar to Mathematics 103, but more theoretical. Students who have taken 32X are encouraged to enroll. Instructor: Staff. One course.

104. Linear Algebra and Applications. QS Systems of linear equations and elementary row operations, Euclidean $n$-space and subspaces, linear transformations and matrix representations, Gram-Schmidt orthogonalization process, determinants, eigenvectors and eigenvalues; applications. Not open to students who have taken Mathematics 107. Prerequisite: Mathematics 32, 32L, or 41. Instructor: Staff. One course.

104X. Honors Intermediate Calculus and Linear Algebra. QS Similar to Mathematics 104, but more theoretical. Instructor: Staff. One course.

105. Vector Calculus. QS Partial differentiation, multiple integrals, and topics in differential and integral vector calculus, including Green's theorem, Stokes's theorem, and Gauss's theorem for students with a background in linear algebra. Not open to students who have taken Mathematics 102 or 103. Prerequisite: Mathematics 104. Instructor: Staff. One course.

107. Linear Algebra and Differential Equations. QS Systems of linear equations, matrix operations, vector spaces, linear transformations, orthogonality, determinants, eigenvalues and eigenvectors, diagonalization, linear differential equations and systems with constant coefficients and applications, computer simulations. Intended primarily for engineering and science students. Prerequisite: Mathematics 102, 103 or 105. Not open to students who have had Mathematics 104. Instructor: Staff. One course.


121. Introduction to Abstract Algebra. QS Groups, rings, and fields. Students intending to take a year of abstract algebra should take Mathematics 200 and 201. Not open to students who have had Mathematics 200. Prerequisite: Mathematics 104. Instructor: Staff. One course.

123S. Geometry. QS, R Euclidean geometry, inverse and projective geometries, topology (Möbius strips, Klein bottle, projective space), and non-Euclidean geometries in two and three dimensions; contributions of Euclid, Gauss, Lobachevsky, Bolyai, Riemann, and Hilbert. Research project and paper required. Prerequisite: Mathematics 32, 32L, 41, or consent of instructor. Instructor: Staff. One course.

124. Combinatorics. QS Permutations and combinations, generating functions, recurrence relations; topics in enumeration theory, including the Principle of Inclusion-Exclusion and Polya Theory; topics in graph theory, including trees, circuits, and matrix representations; applications. Prerequisite: Mathematics 32, 32L, 41 or consent of instructor. Instructor: Staff. One course.

126. Introduction to Linear Programming and Game Theory. QS Fundamental properties of linear programs; linear inequalities and convex sets; primal simplex method,
duality; integer programming; two-person and matrix games. Prerequisite: Mathematics 104 or equivalence. Instructor: Staff. One course.

128S. Number Theory. QS, R  Divisibility properties of integers, prime numbers, congruences, quadratic reciprocity, number-theoretic functions, simple continued fractions, rational approximations; contributions of Fermat, Euler, and Gauss. Prerequisite: Mathematics 32, 32L, 41, or consent of instructor. Individual research paper required. Instructor: Staff. One course. C-L: Information Science and Information Studies

131. Elementary Differential Equations. QS  First and second order differential equations with applications; linear systems of differential equations; Fourier series and applications to partial differential equations. Additional topics may include stability, nonlinear systems, bifurcations, or numerical methods. Not open to students who have had Mathematics 107 or Mathematics 108. Prerequisite: Mathematics 102, 103 or 105; corequisite: Mathematics 104. Instructor: Staff. One course.

132S. Nonlinear Ordinary Differential Equations. QS, R  Theory and applications of systems of nonlinear ordinary differential equations. Topics may include qualitative behavior, numerical experiments, oscillations, bifurcations, deterministic chaos, fractal dimension of attracting sets, delay differential equations, and applications to the biological and physical sciences. Research project and paper required. Prerequisite: Mathematics 107 or 131 or consent of instructor. Instructor: Staff. One course.

133. Introduction to Partial Differential Equations. QS  Heat, wave, and potential equations: scientific context, derivation, techniques of solution, and qualitative properties. Topics to include Fourier series and transforms, eigenvalue problems, maximum principles, Green's functions, and characteristics. Intended primarily for mathematics majors and those with similar backgrounds. Prerequisite: Mathematics 108 or 131 or consent of instructor. Instructor: Staff. One course.


136. Statistics. QS  One course. C-L: see Statistics and Decision Sciences 114; also C-L: Information Science and Information Studies

139. Advanced Calculus I. QS, W  Algebraic and topological structure of the real number system; rigorous development of one-variable calculus including continuous, differentiable, and Riemann integrable functions and the Fundamental Theorem of Calculus; uniform convergence of a sequence of functions; contributions of Newton, Leibniz, Cauchy, Riemann, and Weierstrass. Not open to students who have had Mathematics 203. Prerequisite: Mathematics 102, 103 or 105. Instructor: Staff. One course.

149S. Problem Solving Seminar. QS  Techniques for attacking and solving challenging mathematics problems and writing mathematical proofs. Course may be repeated. Consent of instructor required. Instructor: Staff. Half course.

150. Topics in Mathematics from a Historical Perspective. QS  Content of course determined by instructor. Prerequisite: Mathematics 139 or 203 or consent of instructor. Instructor: Staff. One course.


160S. Mathematical Numerical Analysis. QS, R  Development of numerical techniques for accurate, efficient solution of problems in science, engineering, and mathematics through the use of computers. Linear systems, nonlinear equations, optimization, numerical integration, differential equations, simulation of dynamical systems, error analysis.
Research project and paper required. Not open to students who have had Computer Science 150 or 250. Prerequisites: Mathematics 103 and 104 and basic knowledge of a programming language (at the level of Computer Science 6), or consent of instructor. Instructor: Staff. One course.

181. Complex Analysis. QS Complex numbers, analytic functions, complex integration, Taylor and Laurent series, theory of residues, argument and maximum principles, conformal mapping. Prerequisite: Mathematics 103 and 104 or consent of instructor. Instructor: Staff. One course.

187. Introduction to Mathematical Logic. QS Propositional calculus; predicate calculus. Gödel completeness theorem, applications of number theory, incompleteness theorem, additional topics in proof theory or computability; contributions of Aristotle, Boole, Frege, Hilbert, and Gödel. Prerequisite: Mathematics 103 and 104 or Philosophy 103. Instructor: Staff. One course.

188. Logic and Its Applications. QS Topics in proof theory, model theory, and recursion theory; applications to computer science, formal linguistics, mathematics, and philosophy. Usually taught jointly by faculty members from the departments of computer science, mathematics, and philosophy. Prerequisite: a course in logic or consent of instructor. Instructor: Staff. One course. C-L: Computer Science 148, Philosophy 150

191. Independent Study. Directed reading in a field of special interest under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193. Independent Study. Same as Mathematics 191, but for seniors. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. R Same as Mathematics 192, but for seniors. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

196S. Seminar in Mathematical Modeling. QS, R, W Introduction to techniques used in the construction, analysis, and evaluation of mathematical models. Individual modeling projects in biology, chemistry, economics, engineering, medicine, or physics. Students must write at least one substantial paper on their project. Prerequisite: Mathematics 108 or 131 or consent of instructor. Instructor: Staff. One course.

197S. Seminar in Mathematics. QS, R Intended primarily for juniors and seniors majoring in mathematics. Required research project culminating in written report. Prerequisite: Mathematics 103 and 104. Instructor: Staff. One course.

199S. Honors Seminar. QS, R Topics vary. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

For Seniors and Graduates

200. Introduction to Algebraic Structures I. QS Groups: symmetry, normal subgroups, quotient groups, group actions. Rings: homomorphisms, ideals, principal ideal domains, the Euclidean algorithm, unique factorization. Not open to students who have had Mathematics 121. Prerequisite: Mathematics 104 or equivalent. Instructor: Staff. One course.

201. Introduction to Algebraic Structures II. QS Fields and field extensions, modules over rings, further topics in groups, rings, fields, and their applications. Prerequisite: Mathematics 200, or 121 and consent of instructor. Instructor: Staff. One course.
203. Basic Analysis I. QS, W Topology of $\mathbb{R}^n$, continuous functions, uniform convergence, compactness, infinite series, theory of differentiation, and integration. Not open to students who have had Mathematics 139. Prerequisite: Mathematics 104. Instructor: Staff. One course.

204. Basic Analysis II. QS Differential and integral calculus in $\mathbb{R}^n$. Inverse and implicit function theorems. Further topics in multivariable analysis. Prerequisite: Mathematics 104; Mathematics 203, or 139 and consent of instructor. Instructor: Staff. One course.


206. Differential Geometry. QS Geometry of curves and surfaces, the Serret-Frenet frame of a space curve, Gauss curvature, Cadazzi-Mainardi equations, the Gauss-Bonnet formula. Prerequisite: Mathematics 104. Instructor: Staff. One course.

215. Mathematical Finance. QS An introduction to the basic concepts of mathematical finance. Topics include modeling security price behavior, Brownian and geometric Brownian motion, mean variance analysis and the efficient frontier, expected utility maximization, Ito's formula and stochastic differential equations, the Black-Scholes equation and option pricing formula. Prerequisites: Mathematics 103, 104, 135 or equivalent, or consent of instructor. Instructor: Staff. One course. C-L: Economics 225


217. Linear Models. QS One course. C-L: see Statistics and Decision Sciences 244

219. Introduction to Stochastic Calculus. QS Introduction to the theory of stochastic differential equations oriented towards topics useful in applications. Brownian motion, stochastic integrals, and diffusions as solutions of stochastic differential equations. Functionals of diffusions and their connection with partial differential equations. Ito's formula, Girsanov's theorem, Feynman-Kac formula, Martingale representation theorem. Additional topics have included one dimensional boundary behavior, stochastic averaging, stochastic numerical methods. Prerequisites: Undergraduate background in real analysis (Mathematics 139) and probability (Mathematics 135). Instructor: Staff. One course.

221. Numerical Analysis. QS, R One course. C-L: see Computer Science 250; also C-L: Statistics and Decision Sciences 250


MUSCL, and ENO schemes for scalar laws. Approximate Riemann solvers and schemes for hyperbolic systems. Multidimensional schemes. Adaptive mesh refinement. Prerequisite: Mathematics 224, 225, or consent of instructor. Instructor: Staff. One course.


228. Mathematical Fluid Dynamics. QS Properties and solutions of the Euler and Navier-Stokes equations, including particle trajectories, vorticity, conserved quantities, shear, deformation and rotation in two and three dimensions, the Biot-Savart law, and singular integrals. Additional topics determined by the instructor. Prerequisite: Mathematics 133 or 211 or an equivalent course. Instructor: Staff. One course.

229. Mathematical Modeling. QS Formulation and analysis of mathematical models in science and engineering. Emphasis on case studies; may include individual or team research projects. Instructor: Staff. One course.

231. Ordinary Differential Equations. QS Existence and uniqueness theorems for nonlinear systems, well-posedness, two-point boundary value problems, phase plane diagrams, stability, dynamical systems, and strange attractors. Prerequisite: Mathematics 104, 107 or 131, and 203 or 139. Instructor: Staff. One course.

232. Introduction to Partial Differential Equations. QS Fundamental solutions of linear partial differential equations, hyperbolic equations, characteristics, Cauchy-Kowalevski theorem, propagation of singularities. Not open to students who have taken the former Mathematics 297. Prerequisite: Mathematics 204 or equivalent. Instructor: Staff. One course.


236. General Relativity. NS One course. C-L: see Physics 292

241. Real Analysis. QS Measures; Lebesgue integral; $L^p$ spaces; Daniell integral, differentiation theory, product measures. Prerequisite: Mathematics 204 or equivalent. Instructor: Staff. One course.

242. Functional Analysis. QS Metric spaces, fixed point theorems, Baire category theorem, Banach spaces, fundamental theorems of functional analysis, Fourier transform. Prerequisite: Mathematics 241 or equivalent. Instructor: Staff. One course.

245. Complex Analysis. QS Complex calculus, conformal mapping, Riemann mapping theorem, Riemann surfaces. Prerequisite: Mathematics 204 or equivalent. Instructor: Staff. One course.

250. Computation in Algebra and Geometry. QS Application of computing to problems in areas of algebra and geometry, such as linear algebra, algebraic geometry, differential geometry, representation theory, and number theory, use of general purpose symbolic computation packages such as Maple or Mathematica; use of special purpose packages such as Macaulay, PARI-GP, and LiE; programming in C/C++. Previous experience with programming or the various mathematical topics not required. Corequisite: Mathematics 251 or consent of instructor. Instructor: Staff. One course.

251. Groups, Rings, and Fields. QS Groups including nilpotent and solvable groups, p-groups and Sylow theorems; rings and modules including classification of modules over a
PID and applications to linear algebra; fields including extensions and Galois theory. Prerequisite: Mathematics 201 or equivalent. Instructor: Staff. One course.

252. An Introduction to Commutative Algebra and Algebraic Geometry. QS Affine algebraic varieties, Groebner bases, localization, chain conditions, dimension theory, singularities, completions. Prerequisite: Mathematics 251 or equivalent. Instructor: Staff. One course.

253. Representation Theory. QS Representation theory of finite groups, Lie algebras and Lie groups, roots, weights, Dynkin diagrams, classification of semisimple Lie algebras and their representations, exceptional groups, examples and applications to geometry and mathematical physics. Prerequisite: Mathematics 200 or equivalent. Instructor: Staff. One course. C-L: Physics 293

261. Algebraic Topology I. QS Fundamental group and covering spaces, singular and cellular homology, Eilenberg-Steenrod axioms of homology, Euler characteristic, classification of surfaces, singular and cellular cohomology. Prerequisite: Mathematics 200 and 205 or consent of instructor. Instructor: Staff. One course.

262. Algebraic Topology II. QS Universal coefficient theorems, Künneth theorem, cup and cap products, Poincaré duality, plus topics selected from: higher homotopy groups, obstruction theory, Hurewicz and Whitehead theorems, and characteristic classes. Prerequisite: Mathematics 261 or consent of instructor. Instructor: Staff. One course.

263. Topics in Topology. QS Algebraic, geometric, or differential topology. Consent of instructor required. Instructor: Staff. One course.

264. Computational Topology. QS One course. C-L: see Computer Science 236

266. Differential Geometry. QS Differentiable manifolds, fiber bundles, connections, curvature, characteristic classes, Riemannian geometry including submanifolds and variations of length integral, complex manifolds, homogeneous spaces. Prerequisite: Mathematics 204 or equivalent. Instructor: Staff. One course.

268. Topics in Differential Geometry. QS Lie groups and related topics, Hodge theory, index theory, minimal surfaces, Yang-Mills fields, exterior differential systems, harmonic maps, symplectic geometry. Prerequisite: Mathematics 267 or consent of instructor. Instructor: Staff. One course.

272. Riemann Surfaces. QS Compact Riemann Surfaces, maps to projective space, Riemann-Roch theorem, Serre duality, Hurwitz formula, Hodge theory in dimension one, Jacobians, the Abel-Jacobi map, sheaves, Čech cohomology. Prerequisite: Mathematics 245 and Mathematics 261 or consent of instructor. Instructor: Staff. One course.

273. Algebraic Geometry. QS Projective varieties, morphisms, rational maps, sheaves, divisors, sheaf cohomology, resolution of singularities. Prerequisite: Mathematics 252 and 272 or consent of instructor. Instructor: Staff. One course.

274. Number Theory. QS Binary quadratic forms; orders, integral closure; Dedekind domains; fractional ideals; spectra of rings; Minkowski theory; fundamental finiteness theorems; valuations; ramification; zeta functions; density of primes in arithmetic progressions. Prerequisites: Mathematics 201 or 251 or consent of instructor. Instructor: Staff. One course.

277. Topics in Algebraic Geometry. QS Schemes, intersection theory, deformation theory, moduli, classification of varieties, variation of Hodge structure, Calabi-Yau manifolds, or arithmetic algebraic geometry. Prerequisite: Mathematics 273 or consent of instructor. Instructor: Staff. One course.

278. Topics in Complex Analysis. QS Geometric function theory, function algebras, several complex variables, uniformization, or analytic number theory. Prerequisite: Mathematics 245 or equivalent. Instructor: Staff. One course.

281. Hyperbolic Partial Differential Equations. QS Linear wave motion, dispersion, stationary phase, foundations of continuum mechanics, characteristics, linear hyperbolic
systems, and nonlinear conservation laws. Prerequisite: Mathematics 232 or equivalent. Instructor: Staff. One course.


**283. Topics in Partial Differential Equations. QS** Hyperbolic conservation laws, pseudo-differential operators, variational inequalities, theoretical continuum mechanics. Prerequisite: Mathematics 281 or equivalent. Instructor: Staff. One course.

**287. Probability. QS** Theoretic probability. Triangular arrays, weak laws of large numbers, variants of the central limit theorem, rates of convergence of limit theorems, local limit theorems, stable laws, infinitely divisible distributions, general state space Markov chains, ergodic theorems, large deviations, martingales, Brownian motion and Donsker's theorem. Prerequisites: Mathematics 241 or Statistics 205 or equivalent. Instructor: Staff. One course. C-L: Statistics and Decision Sciences 207

**288. Topics in Probability Theory. QS** Probability tools and theory, geared towards topics of current research interest. Possible additional prerequisites based on course content in a particular semester. Prerequisites: Mathematics 135 or equivalent, and consent of instructor. Instructor: Staff. One course. C-L: Statistics and Decision Sciences 297

**295. Special Topics. QS** Instructor: Staff. One course.

**298. Special Readings. QS** Instructor: Staff. One course.

**THE MAJOR**

The Department of Mathematics offers both the A.B. degree and the B.S. degree. Students who plan to attend graduate school in mathematics or the sciences should consider working toward the B.S. degree, which requires at least eight courses in mathematics numbered above Mathematics 107. The A.B. degree requires at least seven courses in mathematics numbered above Mathematics 107. At least half of the major/minor courses numbered above 103 should be taken at Duke. In particular, Mathematics 121 (or 200) and 139 (or 203) should be taken at Duke. The specific requirements for each degree are listed below.

The director of undergraduate studies can be consulted for additional information and advice on course selection. The *Handbook for Mathematics Majors and Minors*, published by the department, can be used as a guide in developing a coherent program of study consistent with professional goals.

**For the A.B. Degree**

*Prerequisites.* Mathematics 31 or 31L or an equivalent course (Advanced Placement allowed); Mathematics 32 or 32L or 41 or an equivalent course (Advanced Placement allowed); Mathematics 103 and Mathematics 104 or equivalent courses. (Many upper-level mathematics courses assume programming experience at the level of Computer Science 4. Students without computer experience are encouraged to take Computer Science 6.)

*Major Requirements.* Seven courses in mathematics numbered above 107 including Mathematics 121 or 200 and Mathematics 139 or 203.

**For the B.S. Degree**

*Prerequisites.* Mathematics 31 or 31L or an equivalent course (Advanced Placement allowed); Mathematics 32 or 32L or 41 or an equivalent course (Advanced Placement allowed); Mathematics 103 and Mathematics 104 or equivalent courses. (Many upper-level mathematics courses assume programming experience at the level of Computer Science 4. Students without computer experience are encouraged to take Computer Science 6.)
**Major Requirements.** Eight courses in mathematics numbered above 107 including: Mathematics 121 or 200; Mathematics 139 or 203; and one of Mathematics 136, 181, 201, 204, 205, 206, 215, 216. There is also a Physics requirement. It may be met by receiving Advanced Placement credit for Physics 61 and 62; or by completing Physics 41L and 42L, Physics 53L and 54L, or Physics 61L and 62L; or by completing a program of Physics courses approved by the director of undergraduate studies.

**Departmental Graduation with Distinction**

The department offers a program for Graduation with Distinction in mathematics. See the *Handbook for Mathematics Majors and Minors* and also the section on honors in this bulletin.

**THE MINOR**

*Prerequisites.* Mathematics 103 or equivalent.

*Requirements.* Five courses in mathematics numbered above 103, to include at least one course (or its equivalent) from the following: Mathematics 121, 132S, 135, 139, 160, 181, 187, or any 200-level course.

**Mechanical Engineering and Materials Science**

For courses in Mechanical Engineering and Materials Science, see “Mechanical Engineering and Materials Science (ME)” on page 614

**Medical Physics (MEDPHY)**

230. Modern Diagnostic Imaging Systems. One course. C-L: see Biomedical Engineering 233

**Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates**

Qualified students in arts and sciences may select courses from the following offered by the graduate departments associated with the School of Medicine. A major is not offered to undergraduates in any of the departments listed below. For permission to register for these courses and for further information, see Professors Spicer (biochemistry), Endow (cell biology), Marchuk (University Program In Genetics), Dawson (immunology), Wharton (microbiology), Beese (structural biology and biophysics), W. C. Hall (neurobiology), Abraham (pathology), and Schwartz-Bloom (pharmacology and cancer biology).

**BIOCHEMISTRY (BIOCHEM)**

210. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Designed for students interested in either a laboratory or a library project in biochemistry. One course for undergraduate students. One to twelve units for graduate students. Instructor: Staff. Variable credit.

222. Structure of Biological Macromolecules. R Computer graphics intensive study of some of the biological macromolecules whose three-dimensional structures have been determined at high resolution. Emphasis on the patterns and determinants of protein structure. Two-hour discussion session each week along with computer-based lessons and projects. Instructors: D. Richardson and J. Richardson. One course. C-L: Structural Biology and Biophysics 222, Computational Biology and Bioinformatics 252


258. Structural Biochemistry I. Principles of modern structural biology. Protein-nucleic acid recognition, enzymatic reactions, viruses, immunoglobulins, signal transduction, and structure-based drug design described in terms of the atomic properties of biological macromolecules. Discussion of methods of structure determination with particular emphasis on macromolecular X-ray crystallography NMR methods, homology modeling, and bioinformatics. Students use molecular graphics tutorials and Internet databases to view and analyze structures. Prerequisites: organic chemistry and introductory biochemistry. Instructors: Beese and staff. Half course. C-L: Cell and Molecular Biology 258, Cell Biology 258, University Program in Genetics 258, Immunology 258, Structural Biology and Biophysics 258, Computational Biology and Bioinformatics 258

259. Structural Biochemistry II. Continuation of Biochemistry 258. Structure/function analysis of proteins as enzymes, multiple ligand binding, protein folding and stability, allostery, protein-protein interactions. Prerequisites: Biochemistry 258, organic chemistry, physical chemistry, and introductory biochemistry. Instructors: Hellinga and staff. Half course. C-L: Cell Biology 259, Immunology 259, Computational Biology and Bioinformatics 259, Structural Biology and Biophysics 259, University Program in Genetics 259

265S. Seminar. Topics and instructors announced each semester. 2 units or variable. Instructor: Staff. Variable credit.


291. Physical Biochemistry. Basic principles of physical chemistry as applied to biological systems. Topics include thermodynamics, kinetics, statistical mechanics, spectroscopy, and diffraction theory. Concepts discussed in the context of the biochemistry and behavior of biological macromolecules. Emphasis on quantitative understanding of biochemical phenomena, with extensive problem solving as an instructive tool. Prerequisite: undergraduate physical chemistry and one year of calculus. Instructor: Oas and staff. One course. C-L: Structural Biology and Biophysics 291

CELL BIOLOGY (CELLBIO)

All courses require the consent of the instructor and/or the director of undergraduate studies.

203. Introduction to Physiology. Modern organ physiology; cellular physiology, organ system physiology including cardiovascular, respiratory, renal gastrointestinal, endocrine, reproductive, muscle and nervous. Mini course. Prerequisite: elementary biology. Instructors: Jakoi and Vigna. One course.

206. Physiology and Medicine of Extreme Environments. Advanced topics in the physiology and medicine of ambient pressure, immersion, gravity, temperature, and gas composition. Environments include diving and hyperbaric medicine; hot/cold terrestrial and water operations; microgravity and high-g acceleration; high altitude. Examines basic mechanisms and medical management of associated diseases including decompression sickness; altitude sickness; hypothermia and hyperthermia; hypoxia; carbon monoxide poisoning; oxygen toxicity. Laboratory optional. Prerequisites: human anatomy and
physiology; diving techniques, equipment, and procedures; diving physiology, dysbaric diseases, and treatments. Instructor: Staff. Variable credit.

210. Research Independent Study. R Individual Research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. Variable credit. C-L: Marine Sciences

212. Topics in Reproductive Biology. An in-depth, integrative study of male and female reproduction, including (i) hypothalamic, pituitary, and gonadal control mechanisms, (ii) gamete structure and development, (iii) fertilization, and (iv) pregnancy and parturition. Guest lectures will emphasize the interface between basic, veterinary, and medical sciences. Prerequisite: Cell Biology 269 or equivalent. Instructor: N. Anderson, Saling, Schomberg, or Tyrey. One course.


251. Cell and Molecular Biology. One course. C-L: see Cell and Molecular Biology 251

258. Structural Biochemistry I. Half course. C-L: see Biochemistry 258; also C-L: Cell and Molecular Biology 258, University Program in Genetics 258, Immunology 258, Structural Biology and Biophysics 258, Computational Biology and Bioinformatics 258

259. Structural Biochemistry II. Half course. C-L: see Biochemistry 259; also C-L: Immunology 259, Computational Biology and Bioinformatics 259, Structural Biology and Biophysics 259, University Program in Genetics 259

268. Biochemical Genetics II: From RNA to Protein. Half course. C-L: see Biochemistry 268; also C-L: Immunology 268, University Program in Genetics 268

CELL AND MOLECULAR BIOLOGY (CMB)

251. Cell and Molecular Biology. Eighteen topics in cell and molecular biology taught in modular format. Emphasis on in-depth discussion of primary literature, developing quantitative/mathematical approaches to biology or both. Each module 6 classes. Each student takes only 6 modules in semester. At the end, students pair up and devise research proposal, honed over 2 weeks with assigned faculty coach. All proposals presented orally in 1.5-day symposium to entire class. Instructors: Lew, Nicchitta and Wharton. One course. C-L: Cell Biology 251

258. Structural Biochemistry I. Half course. C-L: see Biochemistry 258; also C-L: Cell Biology 258, University Program in Genetics 258, Immunology 258, Structural Biology and Biophysics 258, Computational Biology and Bioinformatics 258

UNIVERSITY PROGRAM IN GENETICS AND GENOMICS (UPGEN)

191. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of the instructor required. Instructor: Staff (Genetics Program). One course.

192. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and
interpretation of a previously approved topic. Consent of the instructor required. Instructor: Staff (Genetics Program). One course.

233. Genetic Epidemiology. This course will cover traditional genetic epidemiologic methods such as study design, linkage analysis and genetic association. Instructor: Ashley-Koch. One course.

258. Structural Biochemistry I. Half course. C-L: see Biochemistry 258; also C-L: Cell and Molecular Biology 258, Cell Biology 258, Immunology 258, Structural Biology and Biophysics 258, Computational Biology and Bioinformatics 258

259. Structural Biochemistry II. Half course. C-L: see Biochemistry 259; also C-L: Cell Biology 259, Immunology 259, Computational Biology and Bioinformatics 259, Structural Biology and Biophysics 259

268. Biochemical Genetics II: From RNA to Protein. Half course. C-L: see Biochemistry 268; also C-L: Cell Biology 268, Immunology 268


IMMUNOLOGY (IMMUNOL)

84FCS. Evolution, Immunity, Microbes and Medicine: A systems-level perspective on human disease. NS Role of the immune system and human microbial symbionts in human disease, both infectious and non-infectious, from an evolutionary and ecological perspective. Introductions to molecular biology, evolution, microbiology and immunology; specific diseases and processes. Open only to students in the Focus Program. Instructors: Chan and Kepler. One course.

191. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.

192. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.

244. Principles of Immunology. NS, R An introduction to the molecular and cellular basis of the immune response. Topics include anatomy of the lymphoid system, lymphocyte biology, antigen-antibody interactions, humoral and cellular effector mechanisms, and control of immune responses. Prerequisites: Biology 119 and Chemistry 151L or equivalents. Instructors: He and Zhang. One course. C-L: Biology 244

258. Structural Biochemistry I. Half course. C-L: see Biochemistry 258; also C-L: Cell and Molecular Biology 258, Cell Biology 258, University Program in Genetics 258, Structural Biology and Biophysics 258, Computational Biology and Bioinformatics 258

259. Structural Biochemistry II. Half course. C-L: see Biochemistry 259; also C-L: Cell Biology 259, Computational Biology and Bioinformatics 259, Structural Biology and Biophysics 259, University Program in Genetics 259

268. Biochemical Genetics II: From RNA to Protein. Half course. C-L: see Biochemistry 268; also C-L: Cell Biology 268, University Program in Genetics 268

MOLECULAR GENETICS AND MICROBIOLOGY (MGM)

203. Research Independent Study. R Independent research in Molecular Genetics and Microbiology. Instructor: Staff. One course.

221. Computational Gene Expression Analysis. QS C-L: see Computational Biology and Bioinformatics 221; also C-L: Statistics and Decision Sciences 278
222. Critical Readings in Genetics and Genomics. One course. C-L: University Program in Genetics 222

252. Virology. Molecular biology of mammalian viruses, with emphasis on mechanisms of replication, virus-host interactions, viral pathogenicity, and the relationship of virus infection to neoplasia. Instructor: Cullen and staff. One course.

282. Microbial Pathogenesis. Modern molecular genetic approaches to understanding the pathogenic bacteria and fungi. Underlying mechanisms of pathogenesis and host-parasite relationships that contribute to the infectious disease process. Instructor: McCusker, Abraham, and staff. One course.

NEUROBIOLOGY (NEUROBIO)

93FCS. Neurobiology of Mind. NS Introduction to the fundamental principles of brain organization and mechanisms. Open only to students in the Focus Program. Instructor: Hall. One course. C-L: Psychology 95FCS, Neurosciences

95FCS. Neuroeconomics: The Neurobiology of Decision Making. NS, SS Emerging ideas in neuroeconomics research. Topics include basic structural and functional organization of the brain, strengths and limitations of techniques in neuroscience, introduction of concepts from economics into neuroscience, and impact of neuroscience on economics models. Open only to students in the Focus Program. Instructor: Huettel and Platt. One course.


112. Introduction to Cognitive Neuroscience. NS One course. C-L: see Psychology 112; also C-L: Philosophy 149, Visual Studies 124F

154. Fundamentals of Neuroscience. NS, STS One course. C-L: see Psychology 135; also C-L: Biology 154, Neurosciences


212. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.


257. Neural Basis of Visual Perception. Current approaches to understanding psychophysical properties of visual perception and underlying neurobiological machinery. Topics: representation of visual attributes (brightness, color, form, motion, depth) in neural circuits; using natural scene statistics to understand perception and neural circuit properties; integration of visual and auditory information to generate unified multimodal representations; use of the visual system to probe cognitive aspects of brain function such as memory and attention. Lectures, background reading, followed by discussion of original papers.
Grades based on class participation and papers critiquing/commenting on assigned papers. Instructor: Fitzpatrick and Purves. One course.

259. Introduction to Audition and Vocal Communication. The purpose of this course is to consider audition in relation to the goals of the auditory systems in humans and many other animals, namely to use sound signals for a variety of biologically significant purposes ranging from navigation in the auditory environment to communication and music. The course will consider these functions primarily in humans, but will also deal with their analogues, homologues, and precedents in a range of other animals. Instructor: Purves and Staff. One course. C-L: Philosophy 259, Psychology 265, Music 259

PATHOLOGY (PATHOL)


192. Tutorial in Human Disease. Reading course focusing on a series of books highlighting different areas of medicine. Substantial analytical paper required to be submitted at the end of semester. Consent of instructor required. Instructor: Friedman. One course.

209. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive written report or oral presentation containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.

210. Research Independent Study. R Individual research and reading of the primary literature in a field of special interest, under the supervision of a faculty member, the major product of which is a substantive written report or oral presentation containing significant analysis and interpretation of a previously approved topic. Consent of instructor required. Instructor: Staff. One course.

258. Cellular and Subcellular Pathology. The course consists of lectures and seminars on the alterations of cellular structure and associated functions that accompany cell injury. Instructors: Shelburne and staff. Half course.

275. Fundamentals of Electron Microscopy and Biological Microanalysis. Emphasis will be placed on preparative procedures including freezing techniques and on the application of electron microscopy to ultrastructural pathology. Scanning electron microscopy, X-ray microanalysis, and scanning ion microscopy will be discussed in addition to conventional transmission electron microscopy. Limited laboratory experience included. Consent of instructor required. Instructors: Ingram, Lefurgey, Roggli, and Shelburne. One course.

PHARMACOLOGY AND CANCER BIOLOGY (PHARM)

90FCS. Chemistry of the Brain: Sex, Eating, and Addiction. NS, R The neurochemistry of the brain. The basic mechanisms, focus on how the brain causes three kinds of behavior: sex, eating, and addiction. Topics such as, how drugs affect the brain, why people get fat, and why anorectic drugs not work over the long run. The neurobiological basis of sexual behavior and sexual differentiation of the brain. Different models of addiction: i.e. a neurochemical adaptation in the brain, a disease, or a moral weakness. Open only to students in the Focus Program. Instructor: Kuhn. One course.

149S. Reward and Addiction. NS One course. C-L: see Psychology 149S

150. Pharmacology: Drug Actions and Reactions. Mechanisms of drug action, concepts of drug toxicity, resistance, tolerance, and drug interactions. Examples of how drugs affect the autonomic and central nervous systems, the cardiovascular and endocrine systems, and how drugs treat infection and cancer. This course is designed for both science and nonscience majors, but preference will be given to junior biology majors concentrating in
pharmacology. Prerequisite: introductory biology (Biology 25L) and chemistry (Chemistry 11L, 12L). Instructor: Schwartz-Bloom. One course.

160. Drugs, Brain, and Behavior. NS One course. C-L: Psychology 127

191. Research Independent Study. R Individual research in a pharmacology-related area under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of the study results. Open to first-year students and sophomores with consent of supervising instructor. Instructor: Staff. One course.

192. Research Independent Study. R Individual research in a pharmacology-related area under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of the study results. Open to first-year students and sophomores with consent of supervising instructor. Instructor: Staff. One course.

197. Research Independent Study in Science Education. R Individual research in a field of science education (with reference to pharmacology) at the precollege level, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of study results. Open to (juniors and seniors) with consent of supervising instructor. Prerequisite: Biology 25L; Chemistry 21L or 23L. Instructor: Schwartz-Bloom. One course.

198. Research Independent Study in Science Education. R Continuation of Pharmacology 197. Open to juniors and seniors with consent of supervising instructor. Prerequisites: Biology 25L; Chemistry 21L or 23L; Pharmacology 197. Consent of instructor required. Instructor: Schwartz-Bloom. One course.

210. Research Independent Study in Science Education. R Individual research in a field of science education (with reference to pharmacology) at the precollege/college level, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of study results. Open to all qualified seniors and graduate students with consent of supervising instructor. Instructor: Schwartz-Bloom. One course.

211. Research Independent Study in Science Education. R Individual research in a field of science education (with reference to pharmacology) at the precollege/college level, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of study results. Open to all qualified seniors and graduate students with consent of supervising instructor. Instructor: Schwartz-Bloom.

233. Essentials of Pharmacology and Toxicology. Drug absorption, distribution, excretion, and metabolism. Structure and activity relationships; drug and hormone receptors and target cell responses. Consent of instructor required. Prerequisite: introductory biology; Chemistry 151L; Mathematics 31 and 32. Instructor: Slotkin and staff. One course.

235. Interdisciplinary Approaches to Pharmacology Part II. NS Several model systems (CNS, cardiovascular, and infectious diseases) will be used to explore the molecular biochemical, and physiological basis of drug action. Instructor: Whorton. One course.

254. Mammalian Toxicology. Principles of toxicology as related to humans. Emphasis on the molecular basis for toxicity of chemical and physical agents. Subjects include metabolism and toxicokinetics, toxicologic evaluation, toxic agents, target organs, toxic effects, environmental toxicity, management of poisoning, epidemiology, risk assessment, and regulatory toxicology, Prerequisite: introductory biology, and Chemistry 151L, or consent of instructor. Instructor: Abou-Donia and staff. One course.

297. Research Independent Study. R Individual research in a pharmacology-related area under the supervision of a faculty member, resulting in a substantive paper or written report
containing significant analysis and interpretation of the study results. Open to juniors and seniors with consent of supervising instructor. Instructor: Staff. One course.

298. Research Independent Study. R Individual research in a pharmacology-related area under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of the study results. Open to juniors and seniors with consent of supervising instructor. Instructor: Staff. One course.

299. Research Independent Study. R Individual research in a pharmacology-related area under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of the study results. Open to juniors and seniors who have already taken Pharmacology 297 and 298, with consent of supervising instructor. Instructor: Staff. One course.

STRUCTURAL BIOLOGY AND BIOPHYSICS

222. Structure of Biological Macromolecules. R One course. C-L: see Biochemistry 222; also C-L: Computational Biology and Bioinformatics 252


259. Structural Biochemistry II. Half course. C-L: see Biochemistry 259; also C-L: Cell Biology 259, Immunology 259, Computational Biology and Bioinformatics 259, University Program in Genetics 259

Medieval and Renaissance Studies (MEDREN)

Associate Professor Shannon, Director; Assistant Professor Woods, Director of Undergraduate Studies; Professors Aers, Beckwith, Bland, Borchardt, Bruzelius, Clark, Clay, DeNeef, Finucci, García-Gómez, Grant, Greer, Hillerbrand, Longino, Maukspf, Mignolo, Porter, Price, Quilligan, Rigsby, Schmaltz, Shatzmiller, Silverblatt, Steinmetz, Wharton, and Van Miegroet; Associate Professors Brothers, Keefe, Neuschel, Rasmussen, Robisheaux, Sigal, Solterer, and Somerset; Assistant Professors Eisner, Janiak, McCarthy, and Shachter; Professors Emeriti Caserta, Mahoney, Newton, Randall, Silbiger, Williams, and Witt; Adjunct Assistant Professor Keul

A major or minor is available in this program.

The program in Medieval and Renaissance Studies is designed to provide the student with a well-rounded understanding of the historical, cultural, and social forces that shaped the medieval and Renaissance periods. The program is divided into four areas of study: fine arts (art and music); history; language and literature (English, French, German, Greek, Italian, Latin, and Spanish); and philosophy and religion. See the section on the major below.

CORE COURSES

21S. First-Year Seminar: Topics in Medieval Studies. Topics vary according to instructor: perspectives from history, literature, religion, philosophy, and the arts. Instructor: Staff. One course.

22S. First-Year Seminar: Topics in Renaissance Studies. Topics vary according to instructor: perspectives from history, literature, religion, philosophy, and the arts. Instructor: Staff. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

114. The Living Middle Ages. ALP, CCI, CZ Interdisciplinary introduction to medieval culture that includes sources and methods from history, literature, and art history. Emphasizes interpretation of written texts, oral traditions, visual culture, and artifacts. Instructor: Staff. One course. C-L: Art History 139, Classical Studies 139, History 116, English 123C


137. Renaissance and Baroque Art History. ALP, CCI, CZ One course. C-L: see Art History 144B

149. Sex, Death, and a Little Love: Boccaccio's Decameron. ALP, CCI, CZ, R One course. C-L: see Italian 144; also C-L: International Comparative Studies 182H

195. Research Independent Study. R Individual research and reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Usually undertaken by a student working on an Honors project in consultation with the student's project advisor. Consent of instructor required. Instructor: Staff. One course.

196. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Instructor: Staff. One course.

OTHER COURSES

For descriptions of most of these courses, consult the cross-listings under the specified department in this bulletin.


100. Topics in Medieval and Renaissance Studies. Topics may focus on fine arts, history, language and literature, or philosophy and religion, frequently engaging interdisciplinary perspectives. Instructor: Staff. One course.

100S. Seminar in Medieval and Renaissance Studies. Seminar version of Medieval and Renaissance Studies 100. Instructor: Staff. One course.

106A. Introduction to Old English. CCI, CZ, R One course. C-L: see English 110A

107A. Tudor/Stuart Britain. CZ, R, W One course. C-L: see History 107A; also C-L: International Comparative Studies 180E


111A. Introduction to Italian Literature I. ALP, CCI, FL One course. C-L: see Italian 111

111B. Introduction to Spanish Literature I. ALP, CCI, FL One course. C-L: see Spanish 111

111ES. Introduction to German Literature. ALP, CCI, FL One course. C-L: see German 121S

112A. Gothic Cathedrals. ALP, CCI, CZ, R One course. C-L: see Art History 110

112B. Medieval Architecture. ALP, CCI, CZ, R One course. C-L: see Art History 111

113. The Art of Medieval Southern Italy. ALP, CCI, CZ, R One course. C-L: see Visual Studies 154

116S. The Pagan World of the Divine Comedy. ALP, CCI One course. C-L: see Classical Studies 116S

117A. Ancient Myth in Literature. ALP, CCI One course. C-L: see Classical Studies 117

119. Medieval Philosophy. CCI, CZ, EI One course. C-L: see Philosophy 119

120. Late Medieval and Renaissance Philosophy. CCI, CZ One course. C-L: see Philosophy 120

121A. Medieval English Literature to 1500. ALP, CCI, R One course. C-L: see English 121A
121B. Sixteenth-Century English Literature. ALP One course. C-L: see English 121B
123A. English Literature: 1600 to 1660. ALP One course. C-L: see English 123A
129C. Shakespeare: Comedies and Romances. ALP One course. C-L: see English 129C
131C. Topics in Medieval Art and Architecture. ALP, CCI, CZ One course. C-L: see Art History 134
132AS. Topics in Renaissance British Literature. ALP Two courses. C-L: see English 132CS
133B. British Isles in the Middle Ages. CCI, CZ, EI One course. C-L: see History 133C
134A. History of Jews in the Early Middle Ages. CCI, CZ, R One course. C-L: see History 134A; also C-L: Jewish Studies 145
134B. History of Jews in the Late Middle Ages. CCI, CZ, R One course. C-L: see History 134B; also C-L: Jewish Studies 146
134C. Jewish Mysticism. CZ, EI One course. C-L: see Religion 134; also C-L: Jewish Studies 106, International Comparative Studies 141C, Ethics
138. Reformation Europe. CCI, CZ One course. C-L: see History 138; also C-L: International Comparative Studies
139AS. Special Topics in British Literature I. ALP One course. C-L: see English 139AS
139BS. Special Topics in British Literature II. ALP One course. C-L: see English 139BS
140A. France in the Making: Language, Nation, and Literary Culture in Premodern Europe. CCI, CZ, FL One course. C-L: see French 142; also C-L: International Comparative Studies
140BS. Chaucer. ALP, CCI, R One course. C-L: see English 140S
140C. Topics in Renaissance Art. ALP, CCI, CZ One course. C-L: see Art History 140
141. Fifteenth-Century Italian Art. ALP, CCI, CZ, R One course. C-L: see Art History 141
141B. Chaucer. ALP, CCI, R One course. C-L: see English 141
142. Sixteenth-Century Italian Art. ALP, CCI, CZ, R One course. C-L: see Art History 142
143. The Art of the Counter Reformation. ALP, CCI, CZ, R One course. C-L: see Art History 143
144AS. Courtly Love and Hate. ALP, CCI, FL One course. C-L: see French 162S
144B. Renaissance and Baroque Art History. ALP, CCI, CZ One course. C-L: see Art History 144A
144C. The Crusades to the Holy Land. CCI, CZ, R One course. C-L: see History 144A; also C-L: Jewish Studies 148
145A. Milton. ALP, R One course. C-L: see English 145
146A. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 146; also C-L: Cultural Anthropology 147, History 101G, International Comparative Studies 141A, Information Science and Information Studies, Ethics
147A. Introduction to Islamic Civilization. CCI, CZ, EI One course. C-L: see Religion 147; also C-L: Cultural Anthropology 148, History 102G, International Comparative Studies, Ethics
147B. Magic, Religion, and Science since 1400. CCI, CZ, STS One course. C-L: see History 147
148B. History of Medieval and Renaissance Italy. ALP, CZ One course. C-L: see History 148B
151A. The History of the Renaissance in Europe 1250-1550. CZ, W One course. C-L: see History 151A; also C-L: International Comparative Studies

410 Courses and Academic Programs
151B. Spanish Literature of the Renaissance and the Baroque. ALP, CCI, FL One course. C-L: see Spanish 151
151C. Art of Italy in the Seventeenth Century. ALP, CCI, CZ, R One course. C-L: see Art History 151; also C-L: International Comparative Studies
151S. Eros in the Renaissance. ALP, CZ, R, W One course. C-L: see Romance Studies 151S
152B. Netherlandish Art and Visual Culture in the Seventeenth and Eighteenth Centuries. ALP, CCI, CZ, R One course. C-L: see Visual Studies 157; also C-L: International Comparative Studies
153B. Golden Age Literature: Cervantes. ALP, CCI, FL One course. C-L: see Spanish 153
155S. Music History I: To 1650. ALP, CCI, CZ One course. C-L: see Music 155S
156A. The Reformation of the Sixteenth Century. CCI, CZ, EI One course. C-L: see Religion 158; also C-L: History 156A, International Comparative Studies 181H, Ethics
157. French Art and Visual Culture in the Early Modern Period. ALP, CCI, CZ, R One course. C-L: see Visual Studies 101C; also C-L: International Comparative Studies 180A
157A. Rise of Modern Science: Early Science through Newton. CZ, STS, W One course. C-L: see History 157A
158. History of Netherlandish Art in a European Context. ALP, CCI, CZ One course. C-L: see Visual Studies 158; also C-L: International Comparative Studies
159. History of Netherlandish Art in a European Context. ALP, CCI, CZ One course. C-L: see Visual Studies 159; also C-L: International Comparative Studies
160S. Topics in Renaissance Literature and Culture. ALP, CCI, FL One course. C-L: see French 143S; also C-L: International Comparative Studies
161S. Topics in Medieval and/or Early Modern Literature and Culture. ALP, CCI One course. C-L: see Italian 145S
164D. Love in the Western World. CCI, CZ One course. C-L: see History 164AD
165S. The Vikings and Their Literature. ALP, CCI, EI One course. C-L: see German 165S
166. Dante's Divine Comedy: Hell, Purgatory and Paradise. ALP, CCI, CZ, EI One course. C-L: see Italian 143; also C-L: Religion 161G, History 142, International Comparative Studies
182. Shakespeare before 1600. ALP, EI, R One course. C-L: see English 143; also C-L: Theater Studies 109
183. Shakespeare after 1600. ALP, EI, R One course. C-L: see English 144; also C-L: Theater Studies 110
200. Advanced Topics in Medieval and Renaissance Studies. Topics may focus on fine arts, history, language and literature, or philosophy and religion. Open to seniors and graduate students; other students may need consent of instructor. Instructor: Staff. One course.
200S. Advanced Seminar in Medieval and Renaissance Studies. Topics may focus on fine arts, history, language and literature, or philosophy and religion. These seminar courses frequently engage interdisciplinary perspectives, historiography, and interpretation of medieval and Renaissance cultures. Open to seniors and graduate students; other students may need consent of instructor. Instructor: Staff. One course.
201S. Introduction to Medieval German: The Language of the German Middle Ages and Its Literature. ALP, FL, R One course. C-L: see German 209S
202A. Christian Thought in the Middle Ages. CZ A survey of the history of Christian theology from St. Augustine to the young Martin Luther. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Steinmetz. One course.

202B. Early and Medieval Christianity. CZ A survey of the history of Christianity from its beginnings through the fifteenth century. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Keefe and Steinmetz. One course.

202C. Modern European Christianity. CZ A survey of the history of Christianity from the Reformation to the present, with emphasis on the early modern era. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Heitzenrater and Steinmetz. One course.

203S. Sex, Gender, and Love in Medieval German Literature. ALP, CCI, FL One course. C-L: see German 210S

204. Origen. CZ, EI One course. C-L: see Religion 204

205. The English Reformation. CZ The religious history of England from the accession of Henry VIII to the death of Elizabeth I. Extensive readings in the English reformers from Tyndale to Hooker. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Steinmetz. One course.

205S. Topics in Dante Studies. ALP, CCI, CZ One course. C-L: see Italian 205S

206. The Christian Mystical Tradition in the Medieval Centuries. CZ Reading and discussion of the writings of medieval Christian mystics (in translation). Each year offers a special focus, such as: Women at Prayer; Fourteenth-Century Mystics; Spanish Mystics. Less well-known writers (Hadhewijch, Birgitta of Sweden, Catherine of Genoa) as well as giants (Eckhart, Ruusbroec, Tauler, Suso, Teresa of Avila, Julian of Norwich, Catherine of Siena, and Bernard of Clairvaux) are included. Also offered as a Divinity School course, and as Religion 206. Open to juniors and seniors only. Instructor: Keefe. One course.

207. Readings in Historical Theology. CZ Also offered as a Divinity School course. Open to juniors and seniors only. Prerequisites: Medieval and Renaissance Studies 202B and 202C. Instructor: Staff. One course.

209S. Middle English Literature: 1100 to 1500. ALP, CCI, R One course. C-L: see English 212S

210S. Topics in Renaissance Studies. ALP, CCI, CZ One course. C-L: see Italian 210S; also C-L: Art History 210S

213S. Chaucer and His Contexts. ALP, CCI, R One course. C-L: see English 213S

216. Augustine. CZ, EI One course. C-L: see Religion 219

218S. Medieval Philosophy. CCI, CZ, R One course. C-L: see Philosophy 218S

220AS. The Society and Economy of Europe, 1400 - 1700. CCI, CZ, R One course. C-L: see History 221AS; also C-L: Economics 221S

220BS. Religion and Society in the Age of the Reformation. CZ, R One course. C-L: see History 221BS

220S. Shakespeare: Selected Topics. ALP, R One course. C-L: see English 220S

221BS. Renaissance Prose and Poetry: 1500 to 1660. ALP, R One course. C-L: see English 221S

223A. Music in the Middle Ages. ALP, R One course. C-L: see Music 222

223B. Music in the Renaissance. ALP, R One course. C-L: see Music 223

224. Music in the Baroque Era. ALP, R One course. C-L: see Music 224

228. The Legacy of Greece and Rome. ALP, CCI, CZ One course. C-L: see Classical Studies 228

234A. Early Christian Asceticism. CZ, EI One course. C-L: see Religion 234; also C-L: Study of Sexualities, Women's Studies
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor(s)</th>
<th>Prerequisites</th>
<th>Open to</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>236A</td>
<td>Luther and the Reformation in Germany.</td>
<td>Steinmetz</td>
<td>C-L: see Latin 240</td>
<td>juniors and seniors only</td>
<td>Also offered as a Divinity School course.</td>
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<tr>
<td>237S</td>
<td>Topics in Romanesque and Gothic Art and Architecture.</td>
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<td>C-L: see Art History 236S</td>
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<td>239S</td>
<td>Special Topics in Latin Literature of the Middle Ages and Renaissance.</td>
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<td>C-L: see Latin 240</td>
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<td>240</td>
<td>Medieval Fictions.</td>
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<td>C-L: see French 240</td>
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<td>241</td>
<td>History of Netherlandish Art and Visual Culture in a European Context.</td>
<td></td>
<td>C-L: see Visual Studies 210; also C-L: International Comparative Studies</td>
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<tr>
<td>242</td>
<td>History of Netherlandish Art and Visual Culture in a European Context.</td>
<td></td>
<td>C-L: see Visual Studies 211; also C-L: International Comparative Studies</td>
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<td>243S</td>
<td>Topics in Netherlandish and German Art.</td>
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<td>C-L: see Art History 243S</td>
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<td>2445</td>
<td>Problems in Reformation Theology.</td>
<td>Steinmetz</td>
<td>Consent of instructor required. Also offered as a Divinity School course.</td>
<td>juniors and seniors only</td>
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<td>245S</td>
<td>Art and Markets.</td>
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<td>C-L: see Visual Studies 252AS; also C-L: Economics 244S</td>
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<tr>
<td>246</td>
<td>Problems in Historical Theology.</td>
<td>Staff</td>
<td>C-L: see Latin 240</td>
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<td>247</td>
<td>Readings in Latin Ecclesiastical Literature.</td>
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<td>C-L: see Latin 240</td>
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<td>248S</td>
<td>Topics in Italian Renaissance Art.</td>
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<td>C-L: see Art History 247</td>
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<td>249</td>
<td>Early Modern Studies.</td>
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<td>C-L: see French 247</td>
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<td>260B</td>
<td>History of the German Language.</td>
<td></td>
<td>C-L: see German 260; also C-L: Linguistics 260</td>
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<td>267S</td>
<td>Britain in the Sixteenth Century.</td>
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<td>C-L: see History 267S</td>
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<td>272</td>
<td>The Early Medieval Church.</td>
<td>Keefe</td>
<td>C-L: see History 267S</td>
<td></td>
<td>Also offered as a Divinity School course.</td>
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<tr>
<td>273</td>
<td>The Early Medieval Church, Out of Africa: Christianity in North Africa before Islam.</td>
<td></td>
<td>C-L: see Religion 254; also C-L: International Comparative Studies, Islamic Studies</td>
<td></td>
<td>Focus on major theological, liturgical, and pastoral problems in the African church in order to gain perspective on the crucial role of the African church in the development of the church in the West. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Keefe. One course.</td>
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<tr>
<td>276</td>
<td>The Sacraments in the Patristic and Early Medieval Period.</td>
<td>Keefe</td>
<td>C-L: see History 267S</td>
<td></td>
<td>A study of the celebration and interpretation of baptism or eucharist in the church orders and texts of the early church writers. Also offered as a Divinity School course. Open to juniors and seniors only. Instructor: Keefe. One course.</td>
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</table>
THE MAJOR

The major requires ten courses, at least eight of which must be at the 100 level or above in the following four areas of study: history; fine arts (art and music); language and literature (English, French, German, Greek, Italian, Latin, and Spanish); philosophy and religion.

Requirements. Students must either participate in the Medieval and Renaissance Focus Program cluster or take Medieval and Renaissance Studies 114 and 115. In addition to these two courses, students must take the remaining eight courses in one of the following distributions: (a) 3-3-2-0, three courses in two of the four areas of study and two courses in a third area; or (b) 3-3-1-1, three courses in two of the four areas of study and one course in each of the other two areas.

Two courses may be at the introductory level approved by the director of undergraduate studies. Students presenting two courses in the Medieval and Renaissance Focus Program do not need approval.

Each program is tailored to the needs and interests of the student under the supervision of a committee consisting of faculty members from appropriate departments. After discussion with the director of undergraduate studies for Medieval and Renaissance Studies, the student submits a provisional program of study outlining special interdisciplinary interests. Normally the program is planned well before the end of the sophomore year to allow time to acquire a working knowledge of languages pertinent to specific interests.

Graduation With Distinction

Majors are encouraged to pursue honors work in an area of special interest.

Procedure for Selection of Students. The student should apply to the director of undergraduate studies during the junior year, and must maintain a minimum GPA of 3.5 in the Medieval and Renaissance Studies major.

Expected Product. A written thesis based on at least one independent study (Medieval and Renaissance Studies 195, 196) with a Medieval and Renaissance Studies faculty member who directs the thesis.

Evaluation Procedure. Evaluation by a committee of three Medieval and Renaissance Studies faculty members appointed by the director of undergraduate studies, one of whom must be the thesis director.

Levels of Distinction. Recommendation from the review committee for distinction, high distinction, and highest distinction based on the quality of the thesis and on performance in the major program.

Special Courses. The Medieval and Renaissance Studies independent study courses (Medieval and Renaissance Studies 195, 196) may count toward the major. The thesis may be written in conjunction with independent study work in either the junior or senior year.

THE MINOR

Requirements. Five courses, at least three of which must be at the 100 level or above. Two of these must be Focus Program courses or Medieval and Renaissance Studies 114 and 115. The three remaining courses may be taken in any distribution suit the student's interests in consultation with the director of undergraduate studies.

THE FOUR COURSE STUDY AREAS

The following courses are taken in distributions across four areas of study. Some of these courses are available in more than one study area. Students who have participated in the Focus Program cluster in Medieval and Renaissance Studies may take Medieval and Renaissance Studies 114 and 115 to fulfill distribution requirements. Cross-listed courses may count toward the major or minor in both Medieval and Renaissance Studies and in the cross-listed departments or programs.

414 Courses and Academic Programs
Area 1: Fine Arts

Area 2: History

Area 3: Language and Literature

Area 4: Philosophy and Religion

Additional Topics and Seminar Courses
The following topics courses are taught in various disciplines and vary from semester to semester. They may be taken in any of the above four study areas depending on the nature of their subjects. Students need to consult with the director of undergraduate studies to determine how any one of these courses may be distributed: 21S, 22S, 49S, 50, 100, 100S, 110, 114, 114S, 115, 195, 196, 200, 200S.

Military Science—Army ROTC (MILITSCI)
Visiting Professor Tribus, Lieutenant Colonel, U.S. Army, Chair and Supervisor of Junior and Senior Instruction; Visiting Assistant Professor Mangan, Major, U.S. Army Reserve, Supervisor of Freshman and Sophomore Instruction

The Department of Military Science offers students from all disciplines within the university the opportunity to study the following subjects: leadership (theory and practice), management (time, personnel, and materiel), ethics and the military profession, the role and responsibility of the military in a democratic society, the philosophy and practice of military law, strategy, and tactics.

The Army ROTC program is made up of a two-year basic course of study (freshman and sophomore level) which is taken without obligation by nonscholarship students, and a two-year advanced course of study (junior and senior level) which includes a five-week leadership camp, usually completed during the summer prior to the senior year. Direct entry into the advanced course is sometimes permitted if an applicant has previous military training or experience, or when a five-week leader’s training course is completed. To be eligible for participation in the advanced course, students must successfully complete the basic course (unless direct entry is permitted), be physically qualified, be of good moral character, be a U. S. citizen, have a minimum of two years remaining as a student (undergraduate or graduate level), and sign a contract to accept a commission in the United States Army, the Army National Guard, or the Army Reserve as directed by the Secretary of the Army.

A laboratory is mandatory each semester for scholarship and nonscholarship cadets. Some specific laboratories are required for non-ROTC students taking Military Science 11, 12, 51, and 52. Students should consult the Department of Military Science (telephone 1-919-660-3090 collect, or 1-800-222-9184, toll free) for more detailed information. Also see the Army Reserve Officers’ Training Corps section under Special Programs in this bulletin.
11. Leadership Laboratory. (Fall semester only.) Drill and ceremonies, marksmanship training, land navigation exercises, first aid, small unit tactics, and confidence training. Must be repeated with each fall semester course. Instructor: Staff.

2L. Leadership Laboratory. (Spring semester only.) Drill and ceremonies, communications, and tactical exercises. Must be repeated with each spring semester course. Instructor: Staff.

11S. Leadership and Personal Development. Examination of the personal challenges and competencies that are critical for effective leadership as an officer in the Army profession: personal development of life skills such as critical thinking, goal setting, time management, physical fitness, and stress management. Laboratory required for ROTC cadets. Instructor: Johnson. Half course.

12S. Introduction to Tactical Leadership. Leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Exploration of leadership values, attributes, skills and actions in the context of practical, hands-on and interactive exercises. Laboratory required for ROTC cadets. Instructor: Johnson. Half course.

26. Army Physical Fitness. Fitness program based on the US Army Physical Fitness Academy model to improve ability in cardiorespiratory endurance, muscular strength and endurance, and overall physical condition. Group stretching techniques, exercise regimens, and running programs; individual workout programs. Emphasis on ability group running. Counts as a physical education activity course; i.e., counts toward the limit of two .5 credit physical activity courses that may be applied toward graduation. Pass/Fail grading only. Instructor: Norby. Half course. C-L: Physical Education 26

28. Advanced Army Physical Fitness. Establish a personal exercise program to meet Army Physical Fitness Test (APFT) requirements and to demonstrate physical fitness leadership. Instructor: Staff. Half course. C-L: Physical Education 28

51. Innovative Team Leadership. Exploration of the dimensions of creative and innovative tactical leadership strategies/styles by examining team dynamics and leadership theories that form the Army leadership framework. Practical application of personal motivation and team building through planning, executing and assessing team exercises. Laboratory required for ROTC cadets. Instructor: Scott. Half course.


100S. The Role of the Army in American Society and the Military Profession. The role of the United States Army in American society from its founding to the present; institutional development shaped by the Constitution, history, political tradition, and other factors. The role of the officer in the Army as a professional, and related issues including professional ethics and leadership under stress. Instructor: Hodges. One course.

113. Small Unit Military Leadership. The study, practice and evaluation of adaptive leadership skills in the context of squad tactical operations. Focus on developing cadets' tactical leadership abilities in preparation for ROTC's summer Leadership Development and Assessment Course (LDAC). Laboratory required for Army ROTC cadets. Consent of instructor required. Prerequisite: Completion of first two years of ROTC or prior military experience. Instructor: Scott. One course.

114. Tactics, Techniques, and Procedures for Military Leaders. Use of increasingly intense situational leadership challenges to build cadet awareness and skills in leading tactical operations up to platoon level. Aspects of combat, stability and support operations. Conduct military briefings and develop proficiency in garrison operations orders. Focus on developing skills in decision-making, persuading and motivating team members. Cadets evaluated as leaders in preparation for ROTC summer Leader Development Assessment.

151S. Developing Adaptive Military Leaders. Development of cadet proficiency in planning, executing and assessing complex operations, functioning as a member of a staff, and providing performance feedback to subordinates. Assessing risk, making ethical decisions, and leading fellow ROTC cadets; identifying responsibilities of key staff, coordinating staff roles and using situational opportunities to teach, train and develop subordinates. Study of military justice and personnel processes in preparation for transition to the Army. Laboratory required for Army ROTC cadets. Consent of instructor required. Prerequisite: Military Science 113 and 114. Instructor: Hodges. One course.

152S. Military Leadership in a Complex World. The dynamics of leading in the complex situations of current military operations. Differences in customs and courtesies, military law, principles of war and rules of engagement in the face of international terrorism. Aspects of interacting with non-government organizations, civilians on the battlefield and host nation support. Laboratory required for ROTC cadets. Consent of instructor required. Prerequisite: Military Science 151S. Instructor: Hodges. One course.

191. Independent Study. Individual study under the supervision of a faculty member. Written consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

Modeling Biological Systems (MBS)

Professor Harer, Director; Associate Professor Kraines, Interim Director 2007–2008

A certificate, but not a major, is available in this program.

The Interdisciplinary Undergraduate Certificate in Modeling Biological Systems is sponsored by the Institute for Genome Sciences and Policy. Participating departments and programs include Biology, Computer Science, Mathematics, and the Institute for Statistics and Decision Sciences. This program aims to provide rigorous biological, mathematical, and computational training and an intensive independent research experience.

Seven courses (and additional components described below) are required for completion of the certificate. The seven courses are Introduction to Modeling Biological Systems, the Capstone course, Biology 118 (Genetics and Molecular Biology), Mathematics 104 (Linear Algebra), a semester-long independent study, and two electives from the approved list available from the program. Students are strongly encouraged to take the introductory course before the end of their sophomore year. The required capstone course is typically taken during the senior year. Elective courses are to be chosen based on the student’s major. Course choices should be made in consultation with the certificate program director. Biological science majors should take two elective courses in quantitative methods. Mathematics, statistics, and computer science majors should take as their two electives two biological science courses with a lab/experimental component, at least one of which should be at the 200 level. Students with other majors or with double majors will make their elective choices in consultation with the program director with an eye toward their background and research interests.

This certificate has two additional required components, besides the regular courses. First, students must complete a summer research experience. Summer funding and assistance with finding appropriate research projects are available. Also, students must take a one-semester independent study course that expands their research experience. Typically, both of these components must involve a faculty member from outside the student’s major department.

Further information is available from the director, Box 90320, Durham, NC 27708-0320.

100S. Introduction to Modeling Biological Systems. QS, R, W Introduction to techniques used in the construction, analysis, and evaluation of mathematical models for biological systems. Includes lectures on genetic, biochemical, physiological, and/or ecological
systems. Building on these concepts, students will select a topic to research and present both orally and in a substantive paper demonstrating application of mathematical and computational approaches to biological/biomedical questions. Required course for Modeling Biological Systems certificate. Prerequisite: Mathematics 108 or 131 or consent of instructor required. Instructor: Staff. One course.

Music (MUSIC)
Professor Jaffe, Chair; Professor of the Practice Dunn, Director of Undergraduate Studies; Associate Professor of the Practice Love, Director of Performance; Professors Berliner, Brothers, Gilliam, Jaffe, and Todd; Associate Professors Meintjes, Rupprecht, and Waebler; Assistant Professors Kelley and McCarthy; Professors Emeriti Bryan, Douglass, Silbiger, and Williams; Associate Professor Emeritus Saville; Assistant Professor Emeritus Henry; Professors of the Practice Davidson, Hawkins, Parkins, Raimi, and Wynkoop; Associate Professors of the Practice Bagg, Ku, Pritchard, and Troxler; Assistant Professor of the Practice Brown; Professor of the Practice Emeritus Jeffrey; Adjunct Assistant Professor Roberts; Adjunct Associate Professor of the Practice Jensen; Lecturers Bonner, Byrne, Cotton, and Finucane

A major, a major with concentration in performance, or a minor is available in this department.

Music is among the most ancient of human pursuits, and has long been viewed as a crucial part of education. As a discipline it has its own logic and grammar, in the understanding of which the mind is stretched and tested. Students at Duke encounter a variety of approaches to music that encompass the many ways that we create, perform, and comprehend it.

Courses fall into three broad categories: theory and composition, literature and history, and applied music (performance). Within these are included many kinds of instruction, such as lessons in performance and composition; theory; history and literature lectures and seminars; electronic music classes; ensembles; practical laboratory work (such as ear-training); coaching sessions in chamber music; and classes in jazz improvisation. Students’ musical activity can vary widely across the spectrum. Almost every student has some personal involvement with music, and the courses aim to further that involvement, whether it is a simple hobby or a compelling interest.

THEORY AND COMPOSITION
55A. Introduction to Music Theory (Advanced). ALP Rudiments of music theory, including meter, major-minor tonality, and chordal vocabulary. Introduction to harmony, four-part chorale writing. Prerequisite: some previous exposure to music theory through playing or singing; familiarity with elementary concepts, e.g. key signature, scales, clefs. Not open to students who have taken Music 55B. (Students without playing or singing experience, see Music 55B.) Instructor: Troxler. One course.
55B. Introduction to Music Theory (beginning). ALP Rudiments of music theory, including meter, major-minor tonality, chordal vocabulary. Introduction to harmony, four-part chorale writing. Prerequisite: ability to read music in one clef. (Students with playing or singing experience, see MUS 55A.) Students who have previously taken Music 55A may not register for 55B. Instructor: Troxler. One course.
56. The Songwriter's Vocabulary. ALP Writing songs in various twentieth-century popular styles. Fundamentals of form, harmony, voice leading, text setting, and production. Prerequisite: Music 55 or consent of instructor. Instructor: Staff. One course.
65. Theory and Practice of Tonal Music I. ALP Elementary principles of tonal organization: diatonic chord progressions and figured bass, two-part elementary counterpoint, introduction to musical forms. Writing of chorale-style settings. Laboratory. Prerequisites: basic knowledge of musical notation and vocabulary, including scales, basic
chords and intervals, key signatures, meter, and rhythm; or Music 55. Instructor: Kelley, Lindroth, Parks, Rupprecht, or staff. One course.

75. Jazz Improvisation I. ALP The theory of jazz improvisation and its practical application to the different styles of jazz. Consent of instructor required. Instructor: Staff. Half course.

76. Jazz Improvisation II. ALP See Jazz Improvisation I. Prerequisite: Music 75 or consent of instructor. Instructor: Staff.

114. Theory and Practice of Tonal Music II. ALP Chromaticism, modulation, musical forms, and counterpoint. Writing of short pieces (minuets, variations, songs). Laboratory. Prerequisite: Music 65. Instructor: Kelley, Lindroth, Rupprecht, or staff. One course.


116S. Counterpoint. R Polyphonic practice of the late baroque: writing of two- and three-part compositions in a variety of genres (baroque dances, inventions, preludes, fugues). Prerequisite: Music 115 or consent of instructor. Instructor: Jaffe. One course.

117S. Theory and Practice of Post-Tonal Music. ALP Analytical studies and compositions in various forms, techniques, and styles, with an emphasis on twentieth-century music. Prerequisite: Music 115 or consent of instructor. Instructor: Jaffe. One course.

118S. Special Topics in Music Theory. ALP Topics vary. Prerequisite: Music 114 or consent of instructor. Instructor: Brown, Jaffe, Lindroth, or staff. One course.

151S. Composition I. ALP, R Composing original music in smaller forms for voice, piano, and other instruments. Studies in compositional techniques. Prerequisites: Music 65 and 114 or consent of instructor. Instructor: Jaffe, Kelley, Lindroth, or staff. One course.

151T. Composition I. ALP, R Same as Music 151S, in tutorial format. Composing original music in smaller forms for voice, piano, and other instruments. Studies in compositional techniques. Prerequisites: Music 65 and 114 or consent of instructor. Not open to students who have taken Music 151S. Instructor: Jaffe, Kelley, or Lindroth. One course.

152T. Composition II. ALP, R Same as Music 152S, in tutorial format. Individual lessons in compositional techniques. See Music 151 or 151A. Prerequisites: Music 65, 114, and 151S or 151T OR consent of instructor. Not open to students who have taken Music 152S. Instructor: Jaffe, Kelley, or Lindroth. One course.


161. Advanced Composition. ALP, R Individual weekly sessions for advanced students. May be repeated for credit. Prerequisites: Music 151S and 152S or consent of instructor. Instructor: Jaffe, Kelley, or Lindroth. One course.

188A. Musical Theater Workshop: Performance. ALP One course. C-L: see Theater Studies 183A

188S. The Diaghilev Ballet: 1909-1929. ALP, CCI, CZ, R, W One course. C-L: see Dance 188S
HISTORY, LITERATURE, AND ETHNOMUSICOCLOGY

20S. Special Topics in Music. ALP Opportunities to engage with a specific issue in music. Instructor: Staff. One course.

48S. Focus Seminar. ALP Topics vary each semester. Open only to students in the Focus Program. Instructor: Staff. One course.

49S. First-Year Seminar. ALP Topics vary each semester offered. Instructor: Staff. One course.

60. Duke-Administered Study Abroad: Special Topics in Music. Topics differ by section. Instructor: Staff. One course.

70. Music, Sound, and Style. ALP, CCI, CZ Study of the components of music (e.g. melody, rhythm) through comparative listening to styles from different places and times, ranging from current popular artists to classical, jazz, and world music. Discussion of the shared and unique aspects of these styles, their historical and cultural links, and how those shape our tastes. Instructor: Davidson, Gilliam, Kelley, McCarthy, Meintjes, or staff. One course.


74D. Introduction to Jazz. ALP, CCI A survey examining musical, aesthetic, sociological, and historical aspects. Instructor: Brothers, Brown, or staff. One course. C-L: African and African American Studies 74D

119S. The Humanities and Music. ALP, CCI, CZ, W Study of music's relationship to the humanities (literature, art, philosophy, cultural and social history) through selected topics. Readings from primary sources, listening to representative pieces of music. Instructor: Staff. One course. C-L: International Comparative Studies

120. Advanced Special Topics in Music. ALP Opportunities to engage with a specific issue in music. Instructor: Staff. One course.

121S. Writing About Music. ALP, W Selected topics in writing about music, to include a range of musical genres and styles engaged through listening, analytical study, and concert attendance. Topics may vary each semester and include studies of critical prose, reviews, various kinds of analysis, program notes, abstracts, music itself as criticism, use of musical examples, bibliography. Prerequisite: Music 55 or basic knowledge of music vocabulary or consent of the instructor. Instructor: Staff. One course.

122S. Radio: The Theater of the Mind. ALP, CZ One course. C-L: see Theater Studies 107S; also C-L: Literature 132AS, English 134AS

126S. The Art of Performance. ALP Fundamental issues in musical performance, examined through performing, comparative listening, readings, and discussion. In-class performance required. Prerequisites: Ability to read music and proficiency in instrumental or vocal performance. Consent of instructor required. Instructor: Staff. One course.

133S. African Mbira Music: An Experiential Learning Class. ALP, CCI, CZ Building and performing one of Africa's most popular musical instruments, the mbira (a kalimba or "finger piano"). Ethnomusicological readings on the instrument's history, role in society, and meaning for musicians. Analysis of musical examples; learning the mbira's repertory and mastering skills common to many forms of African music, including performance of polyrhythms, responsive integration of instrumental and vocal patterns, and formulation of unique renditions of pieces through improvisation. Weekly class labs. Course requires no prior experience with music or woodworking. Instructor: Berliner. One course. C-L: African and African American Studies 131S, Cultural Anthropology 133S

134. Music in East Asia. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 184; also C-L: Religion 161E

420 Courses and Academic Programs
135. Music in South Asia. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 185; also C-L: Religion 161I

136. World Music: Aesthetic and Anthropological Approaches. ALP, CCI, CZ Study of musical styles and practices in relation to issues of creativity, forms of power, and cultural survival; focus on the music and experiences of indigenous peoples, refugees, migrants, and immigrants. Instructor: Meintjes or staff. One course. C-L: Cultural Anthropology 145A, International Comparative Studies, Documentary Studies


138S. Special Topics in Ethnomusicology. ALP, CZ Topics to be announced addressing a range of musical traditions from around the world. Instructor: Meintjes or staff. One course.

139. Music and Modernism. ALP, W A survey of Debussy, Stravinsky, Bartók, Varése, Ives, and other composers who transformed music in Europe and the United States before World War II, as well as prominent post-war figures such as Lutoslawski, Messiaen, and Carter. Topics include the changing role of the composer in society, relationships to literary and visual modernism, the evolution of musical technology, and the composer's dialogues with vernacular music and other traditions. Instructors: Jaffe, Lindroth, or Kelley. One course.

141S. Special Topics in Jazz. ALP Topics vary. Also taught as African and African American Studies 141S. Prerequisite: Music 74 or consent of instructor. Instructor: Brothers or staff. One course.

145. Mozart and His Time. ALP, CCI, W The music of Wolfgang Amadeus Mozart and its relation to contemporary political and cultural developments. Instructor: McCarthy or staff. One course. C-L: International Comparative Studies 180H

150S. Western Musical Instruments. ALP, CCI, CZ, W Survey of the history, technology, and classification of Western musical instruments. Comparative study of examples from Europe and America, concentrating on the period 1700-1945, but examining earlier, sometimes non-Western origins, as well as present-day usage. Hands-on, primary research on instruments in Duke's musical collections. Instructor: Neece. One course.

155S. Music History I: To 1650. ALP, CCI, CZ The history of music in medieval and early modern Europe in its cultural and social context. Prerequisite: Music 65 or consent of instructor. Instructor: Brothers or McCarthy. One course. C-L: Medieval and Renaissance Studies 155S

156S. Music History II: From 1650 to 1850. ALP, CCI, CZ, R The history of music in Europe in its cultural and social context. Prerequisite: Music 65 or consent of instructor. Instructor: Staff. One course. C-L: International Comparative Studies

157. Music History III: After 1850. ALP, CCI, CZ, R The history of music in Europe and the United States in its cultural and social context. Prerequisite: Music 65 or consent of instructor. Instructor: Gilliam or Todd. One course. C-L: International Comparative Studies


163. Opera at the Metropolitan. ALP Introduction to the operas in current repertory at the Metropolitan; discussions with singers, directors, and others involved in their production. Attendance at opera performances required. Offered as part of the Leadership in the Arts Program in New York City. Instructor: Bucker. One course.

164. American Musical Theater from Showboat to Sondheim. ALP One course. C-L: see Theater Studies 104
166S. Opera. ALP, CCI History of opera in many forms, including operetta and Broadway musical. Exploration of opera as music, image, and text, in context of changing society and political climates. Includes study of modern stagings and relevance to modern society. Instructor: Waeb. One course.

168. Piano Music. ALP The two-hundred-year tradition of music for the piano, the evolution of the instrument, and its principal composers (including Mozart, Beethoven, Chopin, Liszt, Brahms, and other major figures up to the present day). Performance traditions, the role of virtuosity, and improvisation. Instructor: Todd. One course.

169. Hollywood Film Music. ALP Film scores from the 1930s to the present. Technical, structural, and aesthetic issues, as well as the problem of musical style. Prerequisite: Music 55 or consent of instructor. Instructor: Gilliam. One course. C-L: Film/Video/Digital

170S. Special Topics in Music History. ALP Topics vary. Instructor: Staff. One course.

190S. Seminar in Music. ALP, R Primarily for junior and senior music majors. Topics to be announced. Prerequisites: Music 115, 155S, 156S, and 157. Instructor: Staff. One course

For Advanced Undergraduates and Graduates

201. Introduction to Musicology. ALP, R Methods of research on music and its history, including studies of musical and literary sources, iconography, performance practice, ethnomusicology, and historical analysis, with special attention to the interrelationships of these approaches. Instructor: Staff. One course.

213. Theories and Notation of Contemporary Music. ALP, R The diverse languages of contemporary music and their roots in the early twentieth century, with emphasis on the problems and continuity of musical language. Recent composers and their stylistic progenitors: for example, Ligeti, Bartók, and Berg; Carter, Schoenberg, Ives, and Copland; Crumb, Messiaen, and Webern; Cage, Varèse, Cowell, and Stockhausen. Instructor: Jaffe, Lindroth, or Kelley. One course.

214S. Introduction To Analysis Of Early Music. ALP Selected areas of pre-tonal music and various analytical methodologies that have been developed to understand them. Content changes, from semester to semester and with different instructors. Possible areas covered include plainchant, trouvère monophony, Machaut, Fifteenth-century polyphony, modal music of the Renaissance, early seventeenth-century repertories. Instructors: Brothers and McCarthy. One course.

217. Selected Topics in Analysis. ALP, R An exploration of analytical approaches appropriate to a diversity of music, which may include settings of literary texts, pre-tonal music, and music in oral and vernacular traditions. Prerequisite: Music 215 or consent of instructor. Instructor: Staff. One course.

222. Music in the Middle Ages. ALP, R Selected topics. Instructor: Brothers. One course. C-L: Medieval and Renaissance Studies 223A

223. Music in the Renaissance. ALP, R Selected topics. Instructor: Brothers or McCarthy. One course. C-L: Medieval and Renaissance Studies 223B


259. Introduction to Audition and Vocal Communication. One course. C-L: see Neurobiology 259; also C-L: Philosophy 259, Psychology 265
295S. Composition Seminar. ALP, R  Selected topics in composition. Instructor: Jaffe, Lindroth, or Kelley. One course.

297. Composition. Weekly independent study sessions at an advanced level with a member of the graduate faculty in composition, producing musical scores (or in some cases, audio documents) which accrue towards the production of a portfolio. Consent of instructor required. Instructor: Jaffe, Kelley, or Lindroth. One course.

298. Composition. Continuation of Music 297. Weekly independent study sessions at an advanced level with a member of the graduate faculty in composition, producing musical scores (or in some cases, audio documents) which accrue towards the production of a portfolio. Consent of instructor required. Instructor: Jaffe, Kelley, or Lindroth. One course.

299. Composition. ALP Continuation of Music 298. Weekly independent study sessions at an advanced level with a member of the graduate faculty in composition, producing musical scores (or in some cases, audio documents) which accrue towards the production of a portfolio. Consent of instructor required. Instructor: Jaffe, Kelley, or Lindroth. One course.

INDEPENDENT STUDY

Admission will be subject to the approval of the director of undergraduate studies and the instructor. The instructor and course content will be established in accordance with the individual student's interests and capacities.

191. Research Independent Study. R Individual research and/or theoretical analysis in a field of special interest, under the supervision of a faculty member, resulting in a substantial paper that contains significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

APPLIED MUSIC

Provided they qualify by audition, students may enroll in private instruction and participate in ensembles. Auditions must be arranged with the instructor prior to registration. Enrollment in an applied music course does not guarantee permission to enroll in the instructor's class or ensemble the following semester; in some cases another audition may be required. For those students who wish to study privately but do not qualify for university-level instruction, a list of music teachers in the immediate area who are available to Duke students can be obtained from the department office. All applied music courses may be repeated for credit, but no more than two ensembles may be taken concurrently.

Credit in Applied Music. Credit for instruction in courses below 100 is granted on the basis of a half course per semester for one hour of private instruction per week, or a half course per year for one half hour of private instruction or one period of class study. An additional weekly class meeting for performance and criticism may be required by the instructor without additional credit.

Fees. Applied music instruction in one medium (instrument or voice) is offered free to music majors and minors. There is a fee for additional instruction for music majors and minors and all instruction for nonmajors. For specific information on those fees (for one-hour and half-hour private lessons and for class lessons) consult the Office of the Bursar.

Fees are not refundable after the final drop/add day.

No charge is made for practice room facilities for students registered at Duke. A fee schedule for the use of facilities by others is available from the music department office.

57S. Vocal Diction. Italian/English. For singers, actors, radio announcers, and public speakers. Introduction to the international phonetic alphabet. Students will be required to sing in class. Written, oral, and vocal performance examinations. Instructor: Lail. Half course.
58S. **Vocal Diction.** Continuation of Music 57S. German/French. Instructor consent required. Instructor: Lail. Half course.

**Instruction: half hour**

79A. **Class Piano.** Instructor consent required. Instructor: Greenberg. Quarter course.
79B. **Class Voice.** Instructor: Lail. Quarter course.
79C. **Class Guitar.** Instructor: Reed. Quarter course.
79D. **Djembe Class.** Instructor: Simmons. Quarter course.
79E. **Mbira Class.** Instructor consent required. Instructor: Magaya. Quarter course.
80A. **Classical Piano.** Instructor: Hawkins, Heid, Liu, Love, or staff. Quarter course.
80B. **Jazz Piano.** Instructor: Paolantonio or staff. Quarter course.
81A. **Violin.** Instructor: Ku, Pritchard, or Warburg. Quarter course.
81B. **Viola.** Instructor: Bagg. Quarter course.
81C. **Cello.** Instructor: Raimi. Quarter course.
81D. **Double Bass.** Instructor: Brown. Quarter course.
82A. **Flute.** Instructor: Troxler. Quarter course.
82B. **Oboe.** Instructor: Newsome or Robinson. Quarter course.
82C. **Clarinet.** Instructor: Gilmore. Quarter course.
82D. **Bassoon.** Instructor: Pederson. Quarter course.
82E. **Saxophone.** Instructor: Staff. Quarter course.
83A. **French Horn.** Instructor: Halverson. Quarter course.
83B. **Trumpet.** Instructor: Eagle. Quarter course.
83C. **Trombone.** Instructor: Kris. Quarter course.
83D. **Tuba.** Instructor: Staff. Quarter course.
84A. **Percussion.** Instructor: Hanks. Quarter course.
84B. **Djembe.** Instructor: Simmons. Quarter course.
84C. **Mbira.** ALP Instructor consent required. Instructor: Staff. Quarter course.
85. **Voice.** Instructor: Dunn, Jensen, Lail, or Linnartz. Quarter course.
86. **Organ.** Instructor: Parkins. Quarter course.
87. **Harpichord.** Instructor: Parkins. Quarter course.
88A. **Classical Guitar.** Instructor: Reed. Quarter course.
88B. **Jazz Guitar.** Instructor: Lile. Quarter course.
89. **Harp.** Instructor: Staff. Quarter course.

**Instruction: 1 hour**

90A. **Classical Piano.** Instructor: Hawkins, Heid, Liu, Love, or staff. Half course.
90B. **Jazz Piano.** Instructor: Paolantonio or staff. Half course.
91A. **Violin.** Instructor: Ku, Pritchard, or Warburg. Half course.
91B. **Viola.** Instructor: Bagg. Half course.
91C. **Cello.** Instructor: Raimi. Half course.
91D. **String Bass.** Instructor: Brown. Half course.
92A. **Flute.** Instructor: Troxler. Half course.
92B. **Oboe.** Instructor: Newsome or Robinson. Half course.
92C. **Clarinet.** Instructor: Gilmore. Half course.
92D. **Bassoon.** Instructor: Pederson. Half course.
92E. **Saxophone.** Instructor: Staff. Half course.
93A. **Trumpet.** Instructor: Eagle. Half course.
93B. **French Horn.** Instructor: Halverson. Half course.
93C. **Trombone.** Instructor: Kris. Half course.
93D. **Tuba.** Instructor: Staff. Half course.
94A. **Percussion.** Instructor: Hanks. Half course.
94B. **Djembe.** Instructor: Simmons. Half course.
94C. **Mbira.** ALP Instructor consent required. Instructor: Staff. Half course.
95. **Voice.** Instructor: Dunn, Jensen, Lail, or Linnartz. Half course.
98A. **Classical Guitar.** Instructor: Reed. Half course.
98B. **Jazz Guitar.** Instructor: Lile. Half course.
99. **Harp.** Instructor: Staff. Half course.

**Ensemble Classes: pass/fail**

100. **Symphony Orchestra.** Instructor: Davidson. Half course.
102. **Marching Band.** Instructor: Au. Half course.
104. **Small Jazz Ensemble.** Instructor: Finucane. Quarter course.
105. **Collegium Musicum.** Instructor: McCarthy. Half course.
106. **Chamber Music.** Instructor: Bagg or staff. Half course.
107B. **Djembe Ensemble.** Instructor: Simmons. Half course.
108. **Afro-Cuban Percussion.** Instructor: Simmons. Quarter course.
111. **Opera Workshop.** Instructor: Dunn. Half course.
112. **Chapel Choir.** Instructor: Wynkoop. Half course.
113. **Chorale.** Instructor: Wynkoop. Half course.

**Other Applied Music Courses**

128. **Instrumental Conducting.** ALP Development of techniques of conducting instrumental ensembles with emphasis on orchestral repertoire. Score-reading and analysis, principles of interpretation, and practical conducting experience. Prerequisite: Music 114 and consent of instructor. Instructor: Davidson. One course.
129. **Choral Conducting.** ALP Development of techniques of conducting vocal repertoire, ranging from church anthems to large-scale works. Score-reading and analysis, principles of interpretation, and practical conducting experience. Prerequisite: Music 114 or consent of instructor. Instructor: Wynkoop. One course.
179. **Advanced Study in Musical Performance.** Open only to sophomores, juniors, and seniors possessing an exceptional technical and interpretative command of a musical medium. Requires either a half-length recital at the end of each semester of study or a full-length recital at the end of the second semester. In the latter case, a brief performance before a jury of music department faculty is required at the end of the first semester. May be repeated for credit. Prerequisites: previous registration in private instruction in applied music at Duke, audition, and consent of instructor. Instructor: Staff. One course.
187. **Interpretation and Performance.** ALP Interpretative analysis of instrumental (piano, strings, winds) and vocal repertoire from baroque to modern composers. Participants expected to perform. Consent of instructor required. Instructor: Cotton, Dunn, Linnartz, Love, or Troxler. One course.
THE MAJOR

The requirements present a balanced selection of courses in music theory, history, literature, and performance, and are a means of preparing graduates for further professional training in the art of music. The music major can also be an attractive pursuit for the well-rounded undergraduate planning a career in another field. A sequence of three courses seeks to develop the student’s fluency in music theory, while another three semesters are devoted to a survey of Western music history. Students add breadth to their program by choosing classes from three additional categories: music from the post-tonal era, music from outside the Western classical tradition, and studies in advanced performance and composition. As they progress through the major curriculum, students develop their practical musicianship and performance skills through music theory labs, applied lessons, and participation in music department ensembles. A research seminar provides the music major’s senior year capstone experience.

The music major requires ten full course credits, at least eight of which must be at the 100 level or above, and study in applied music (see below).

The major offers two tracks.

1. Major in Music

   Prerequisite. Music 65

   Requirements. Music 114, 115, 155S, 156S, 157, 190S or a 200-level course approved by the director of undergraduate studies. One course each from two of the following three groups:

   Group A: Music 117S, 139
   Group B: Music 134, 135, 136, 137, 138S, 141S, 142
   Group C: Music 161, 177, 179.

   One additional music elective approved by the director of undergraduate studies. Two semesters of applied music study in an instrument or voice; two semesters of participation in a departmental ensemble (excluding Music 102). Faculty advisory panel consultation during sophomore year. Those who plan graduate study in music are strongly advised to prepare themselves in two foreign languages.

2. Major in Music with Concentration in Performance

   Prerequisite. Music 65.

   Requirements. Music 114, 115, 155, 156, 157, 190S or a 200-level course approved by the director of undergraduate studies.

   Two full credits of Music 179, culminating in a recital. One additional music elective approved by the director of undergraduate studies.

   At least five semesters of applied music (Music 80-99, 179) earning a minimum of four full credits; two semesters of participation in a departmental ensemble (not 102).

   Faculty advisory panel consultation during sophomore year.

Departmental Graduation with Distinction. Music majors who have earned a minimum 3.5 average in music courses may undertake work leading to departmental Graduation with Distinction. The candidate must make application to the director of undergraduate studies by March 20 of the junior year. The project is normally a year-long endeavor involving an independent study or an appropriate graduate seminar each semester of the senior year. It must culminate in (a) a substantial paper (historical, analytical, or theoretical); or (b) a full-length recital with a shorter paper or composition; or (c) a major composition with a shorter paper or half-length recital. The final project must be approved by a faculty committee.

THE MINOR

A minimum of five and one-half course credits is required for the minor, of which at least three full course credits must be above 113.

Requirements.
1. Music 65
2. One course in music history from among: Music 155S, 156S, 157
3. One full course credit from among: Music 74, 75, 76, 114, 134, 135, 136, 137, 138S, 141S, 142, 155S, 156S, 157
4. Two semester courses in performance from among: Music 79-113 (excluding 102), 128, 129, 177, 179
5. Two additional full course credits in music, one of which must be above 113.

Naval Science—Navy ROTC (NAVALSCI)

Professor Matts, Captain, U.S. Navy, Chair; Visiting Assistant Professor Bullaro, Lieutenant, U.S. Navy, Director of Undergraduate Studies; Visiting Associate Professor Nichols, Lieutenant Colonel, U.S. Marine Corps; Visiting Assistant Professors Emery, Lieutenant, U.S. Navy, Fleming, Captain, U.S. Marine Corps, and VanHo, Lieutenant, U.S. Navy

Courses in naval science are open to all students. The program in naval science offers students an opportunity to gain a broad-based knowledge in naval studies leading to a challenging career as a Navy or Marine Corps officer. Since a major is not available in this program, scholarship program participants are encouraged to pursue majors in technical fields, although a major in any field of study leading to a baccalaureate degree meets the basic requirement. The academic program for an approved degree and commission must include all naval science courses and laboratories. Navy option scholarship students must complete one year of calculus by the end of the sophomore year, one year of calculus-based physics by the end of the junior year, one semester of American military history or national security policy, one year of English, and one semester of a regional studies course.

Non-scholarship Navy option student requirements are one year of calculus by the end of sophomore year, one year of calculus-based physics by the end of junior year, one semester of American military history or national security policy, one year of English, and one semester of a regional studies course. Marine Corps option students are required to take one semester of American military history or national security policy.


11L. Naval Orientation Laboratory. Practical application of the elements and material presented in Naval Science 11. Instructor: Staff.


12L. Naval Ships Systems Laboratory. Practical application of the theories and principles of naval ships systems. Instructor: Staff.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

52. Seapower and Maritime Affairs. STS The role of seapower in national and foreign policy, and as an instrument of political and military strategy. Includes comparative study of United States and other nations' maritime strategies. Instructor: Staff. One course.


126. Concepts and Analyses of Naval Tactical Systems. The study of weapons systems used aboard naval vessels and aircraft. Detection systems; systems integration into current naval platforms and their offensive and defensive capabilities. Instructor: Staff. One course.

126L. Naval Tactical Systems Laboratory. Practical application of the theories and principles of naval tactical systems. Instructor: Staff.

131L. Navigation Laboratory. Practical application of the theories and principles of navigation as presented in the lecture series. Instructor: Staff.


132L. Naval Operations Laboratory. Practical application of the theories of naval operations as presented in the lecture series. Instructor: Staff.

141S. Evolution of Warfare. STS Continuity and change in the history of warfare, with attention to the interrelationship of social, political, technological, and military factors. Instructor: Staff. One course.

145. Naval Leadership and Management I. Study of organizational behavior and management in the context of naval and Marine Corps organization. Topics include leadership, management functions, planning, controlling, and directing. Instructor: Staff.

145L. Naval Leadership and Management I Laboratory. Practical application of the theories discussed in Naval Science 145. Instructor: Staff.

146. Naval Leadership and Management II. The study of officer responsibilities in naval administration. Discussions of counseling methods, ethics, military justice, human resources management, leadership, and supply systems. Instructor: Staff.

146L. Naval Leadership and Management II Laboratory. The practical application of theories discussed in Naval Science 146. Instructor: Staff.

147. Marine Leadership Laboratory. Marine Corps career management, naval correspondence, force structure, leadership techniques, and training. Instructor: Staff.

148L. Marine Leadership Laboratory. Continuation of Naval Science 147L. Instructor: Staff.

151S. Amphibious Warfare. Development of amphibious doctrine, with attention to its current applications. Instructor: Staff. One course.

191. Independent Study. Individual non-research directed study in a field of special interest on a previously approved topic, under the supervision of a faculty member, resulting in an academic product. Open only to qualified students in junior or senior years by consent of director of undergraduate studies. Instructor: Staff. One course.

**Neurobiology**

For courses in neurobiology, see Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates

**Neurosciences**

For courses in neurosciences, see biology, psychology and neuroscience, and the Neuroscience Program.

**Neuroscience Program**

Professors Meck and Nowicki, *Co-directors*

The study of the nervous system has developed into one of the most exciting areas of modern science with rapidly expanding knowledge in both basic and medically applied areas. The Neuroscience Program offers the student guidance in planning a liberal arts education in the context of a structured emphasis on study in the neural sciences. The program especially encourages and facilitates undergraduate research participation, through independent study courses, in neuroscience laboratories across the university,
including the Medicine (School)—Graduate (School) Basic Sciences Department of Neurobiology. The program also sponsors special lectures, workshops, and research mini-symposia throughout the academic year designed to foster undergraduate interest in neurobiology.

B.S. majors in departments other than biology and psychology may complete a sequence of required courses for a Neuroscience Program certificate by taking the two introductory courses (e.g., Psychology 91 and Biology 154/Psychology 135—prerequisites: Biology 25L and Chemistry 12L or 22L), three electives, and the capstone course (Psychology 195). Independent study (Psychology 191-194, Neurobiology 210, and Biology 191-194) is highly recommended for all participants in the program and may be counted toward completion of the elective requirements. In order to ensure interdisciplinarity, no more than one-half the total courses taken to satisfy the specific requirements of the certificate may originate in a single department.

For more information, students should call the Departments of Psychology or Biology, contact either of the program co-directors, Professors Meck or Lamoureux (psychology), e-mail: meck@psych.duke.edu or jefl@psych.duke.edu, or Professor Nowicki (biology), e-mail: snowicki@duke.edu, consult the neuroscience program’s world-wide-web homepage at http://www.duke.edu/neurosci, or obtain materials at the program office, Rm. 3019 Genome Science Research Building #2.

CORE COURSES

Biology
154. Fundamentals of Neuroscience

Neurobiology
154. Fundamentals of Neuroscience

Psychology and Neuroscience
91. Biological Bases of Behavior: Introduction and Survey
135. Fundamentals of Neuroscience

CAPSTONE COURSE
195S. Topics in Neuroscience

ELECTIVE COURSES

The following is a partial listing of representative elective courses. For descriptions, consult the listings under specified departments in the undergraduate and graduate bulletins.

Biological Anthropology and Anatomy
171. Primate Sexuality

Biology
156L. Sensory Physiology and Behavior of Marine Animals
168. Comparative Psychology
171. Primate Sexuality
184L. Experimental Cell and Molecular Biology
191. Research Independent Study
195S. Seminar in Biology

Neurobiology
93FCS. Neurobiology of Mind

Psychology and Neuroscience
95FCS. Neurobiology of Mind
120. Comparative Psychology
126. Behavior and Neurochemistry (B, P)
141S. Emotions and the Brain (B, C)
146S. Functional Anatomy of the Human Brain (B, C)
150S. Hormones and Behavior (B, P)
181CS. Brain Waves and Cognition (B, C)
191. Research Independent Study
192. Research Independent Study
193. Research Independent Study
194. Research Independent Study

Nonlinear and Complex Systems (NCS)

The Center for Nonlinear and Complex Systems (CNCS) is an interdisciplinary organization at Duke that brings together researchers and teachers with interests in nonlinear dynamics, chaos, complex systems and related topics. The center provides an enrichment course, Nonlinear and Complex Systems 201, that encourages students to explore and learn about diverse aspects of the field, as applied broadly in science, engineering, mathematics, and social sciences. A large selection of other courses is also relevant to the center. Students should contact the director for additional information.

201. Survey of Nonlinear and Complex Systems. (M) NS, QS Half Course. C-L: see Physics 201

Pashto

For courses in Pashto, see Slavic and Eurasian Studies on page 535

Pathology

For courses in pathology, see Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates.

Pharmacology

For courses in pharmacology, see Medicine (School)—Graduate (School) Basic Science Courses Open to Undergraduates.

Persian

For courses in Persian, see “PERSIAN (PERSIAN)” on page 545, in Slavic and Eurasian Studies.

Philosophy (PHIL)

Professor Schmaltz, Chair; Professor Rosenberg, Director of Undergraduate Studies; Professors Brandon, Buchanan, Flanagan, Gillespie (political science), Grant (political science), Golding, Hoover, McShea (biology), Neander, Norman, Purves (neurobiology), Sanford, Sreenivasan, and Wong; Associate Professors Ferejohn and Güzeldere; Assistant Professors Einheuser, Jianiak, and Sterrett; Professors Emeriti Mahoney and Peach; Adjunct Associate Professor Ward; Senior Research Scholar Dretske

A major or minor is available in this department.

The undergraduate program in the Department of Philosophy acquaints students with the content and the structure of philosophical theory in various areas. Classes encourage discussion so that students can engage actively in the philosophical examination of problems.

Course offerings fall into two general categories: the systematic and the historical. In a systematic treatment, the organization of a course reflects the problems presented by the subject matter of that course, as in logic, ethics, and metaphysics. Historical courses direct attention more to the order of development in the thought of a particular philosopher (Plato, Aristotle, Kant) or in a historical period. In all courses, reading of the works of philosophers acquaints the students with the important and influential contributions to the definition and solution of philosophical issues.

The problems raised in philosophy about various fields of the arts and sciences involve questions that these particular disciplines typically neglect. In the consideration of such problems, students will acquire some understanding and perspective of the major areas of the human intellectual endeavor. Philosophical comprehension is in this way an essential part of a complete education.
Philosophy provides a sound preparation for the demands of many professions. For example, precision of argument and broad acquaintance with intellectual traditions emphasized in philosophy form an excellent basis for the study of law.

Only one course from among Philosophy 41, 42, 43S, and 44S may be taken for credit. These courses are not open to juniors and seniors.

41. **Introduction to Philosophy. CZ, W** Examination of problems in philosophy; emphasis on metaphysics and theory of knowledge. Instructor: Staff. One course.

42. **Introduction to Philosophy. CZ, EI, W** Examination of problems in philosophy; emphasis on ethics and value theory. Instructor: Staff. One course.

43S. **Introduction to Philosophy. CZ, W** Philosophy 41 conducted as a seminar. Instructor: Staff. One course.

44S. **Introduction to Philosophy. CZ, EI, W** Philosophy 42 conducted as a seminar. Instructor: Staff. One course.

48. **Logic. CZ** The conditions of effective thinking and clear communication. Examination of the basic principles of deductive reasoning. Instructor: Brandon, Einheuser, Guzeldere, Sanford, or staff. One course.

49S. **First-Year Seminar.** Topics vary each semester offered. Instructor: Golding. One course.

50. **Duke-Administered Study Abroad: Special Topics in Philosophy. CCI** Topics differ by section. Instructor: Staff. One course.

85FCS. **Freedom and Responsibility: The Ethical Dimensions of Liberty. CZ, EI, SS** One course. C-L: see Political Science 85EFCS

98FCS. **Puzzles of the Mind: Humans, Animals, & Machines. CZ** The nature and constitution of mind in humans, animals, and robots. Relation between body/mind and consciousness/cognition. Related philosophical problems about the mind: subjectivity, skepticism about other minds, relation of language to mind, and the effects of brain lesions on mental life. Readings from philosophy, psychology, neuropsychology, cognitive ethology, and artificial intelligence. Open only to students in the Focus Program. Instructors: Flanagan, Guzeldere, Sanford. One course.

99FCS. **Science, Philosophy, and Religion: The Faces of Science. CZ, STS** Transformation of the shifting boundaries between science and philosophy, science and religion. From the scientific revolution in the seventeenth century to the twenty-first century. Open only to students in the Focus Program. Instructor: Janiak. One course.

100. **History of Ancient Philosophy. CCI, CZ** The pre-Socratics, Socrates, Plato, Aristotle, and post-Aristotelian systems. Not open to students who have taken Classical Studies 93 or Philosophy 93. Instructor: Ferejohn or staff. One course. C-L: Classical Studies 100

101. **History of Modern Philosophy. CCI, CZ** Seventeenth and eighteenth century attempts to address philosophical problems concerning knowledge and the nature of reality in Descartes, Spinoza, Malebranche, Leibniz, Locke, Berkeley, Hume, and Kant. Instructor: Flanagan, Janiak, Rosenberg, or Schmaltz. One course.

102. **Aesthetics: The Philosophy of Art. ALP, CZ** The concept of beauty, the work of art, the function of art, art and society, the analysis of a work of art, criticism in the arts. Instructor: Ward. One course. C-L: Visual Studies 122A

103. **Symbolic Logic. CZ** Detailed analysis of deduction and of deductive systems. Open to sophomores by consent of instructor. Instructor: Brandon, Einheuser, Guzeldere, or Rosenberg. One course. C-L: Linguistics 103, Information Science and Information Studies

104. **Foundations of Scientific Reasoning. CZ, STS** Introduction to inductive logic, probability, and causality. Probability as a measure of belief, probability as frequency, philosophical problem of induction, determinism and indeterminism in causation. General versus particular causal claims. Instructor: Brandon, Rosenberg, or Sterrett. One course. C-L: Information Science and Information Studies
106. Philosophy of Law. CZ, EI Natural law theory, legal positivism, legal realism, the relation of law and morality. Instructor: Golding. One course. C-L: Ethics

107. Political and Social Philosophy. CZ, EI Basic ethical concepts involved in political organization and in a variety of periods, such as equality, human dignity and rights, source of political obligation, political education. Discussion of contemporary problems. Examination of contemporary viewpoints such as liberalism and feminism. Instructor: Wong. One course. C-L: Ethics

109. Philosophy of Language. CZ A philosophical analysis of problems arising in the study of language and symbolism. Topics include: theories of language, the nature of signs and symbols, theories of meaning, types of discourse (scientific, mathematical, poetic), definition, ambiguity, metaphor. Instructor: Einheuser or Sterrett. One course. C-L: Linguistics 109

110. Knowledge and Certainty. CZ, R Problems in the theory of knowledge: conditions of knowledge, skepticism, perception, memory, induction, knowledge of other minds, and knowledge of necessary truths. Instructor: Einheuser, Ferejohn or Sanford. One course. C-L: Information Science and Information Studies


112. Philosophy of Mind. CZ, R Such topics as mind and body, the nature of thought, perception, consciousness, personal identity, and other minds. The relevance of cognitive psychology, neuroscience, and computer science to the philosophy of mind. Instructor: Einheuser, Flanagan, Guzeldere, or Sanford. One course. C-L: Linguistics 108, Visual Studies 122B, Information Science and Information Studies

113. Philosophy of Mathematics. CZ Survey of mathematical thought including the nature of infinity, Platonism, constructivism, and the foundational crisis of the early twentieth century. Prerequisite: one course in calculus or logic or philosophy; or consent of instructor. Instructor: Einheuser or Sterrett. One course.

114. Philosophy of Biology. CZ, NS, R, STS An introduction to conceptual and methodological issues raised in contemporary biology, including teleology, reductions, the units of selection, and the structure of evolutionary theory. Prerequisites: Biology 25. Instructor: Brandon or Rosenberg. One course. C-L: Biology 174

115. Applied and Environmental Ethics. CZ, EI, STS A critical examination of ethical dimensions of several contemporary individual and political normative problems, including abortion, affirmative action, national and international economic redistribution, and the environmental impact of economic changes and political decisions. Instructor: Staff. One course. C-L: Ethics


117. Ancient and Modern Ethical Theory. CCI, CZ, EI Major ethical theories both classical and modern; virtue theories and rule-based theories. Readings from Plato and Aristotle with a variable comparative component, Chinese, Indian, Buddhist depending on the instructor, as well as Kant and Mill. Open only to undergraduates. Instructor: Flanagan, Golding, or Wong. One course. C-L: Ethics, Politics, Philosophy, and Economics

118. Philosophical Issues in Medical Ethics. CZ, EI, STS Ethical issues arising in connection with medical practice and research and medical technology. Definition of health and illness; experimentation and consent; genetic counseling and biological engineering; abortion, contraception, and sterilization; death and dying; codes of professional conduct; and the allocation of scarce medical resources. Prerequisite: for freshmen, previous
philosophy course and consent of instructor. Instructor: Staff. One course. C-L: Health Policy, Ethics


120. Late Medieval and Renaissance Philosophy. CCI, CZ Study of conceptual shifts from the Middle Ages to the Renaissance and Early Modern period stressing impact of Muslim philosophy on the Christian west. Revival of ancient thought, scientific developments, European discovery of New World and impact on political philosophy. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 120

122. Philosophical Issues in Feminism. CZ, EI Issues in political and moral philosophy in their bearing on feminist concerns, including political equality and rights, preferential treatment, feminist and nonfeminist critiques of pornography, and the morality of abortion. Instructor: Wong. One course. C-L: Women's Studies


129. Topics in the History of Philosophy. CZ Topics in one or more periods in the history of philosophy (e.g., ancient, medieval, or modern) such as skepticism, mind-body relations, the nature of persons and personal identity, the relation between physics and metaphysics, causation and explanation. Instructor: Flanagan, Ferejohn, Janiak, Rosenberg, or Sterrett. One course.

130. Philosophy of Religion. CZ, EI, R Justification for and content of religious belief. Topics considered include arguments for the existence of God, the problem of evil, religious diversity, and the importance of religion for morality. Instructor: Schmaltz. One course.


135. **Thinking About God: The Nature of Religious Belief at the Crossroads of Judaism, Christianity, & Islam. CCI, CZ, EI** Analytical examination of bases for belief in God and possibility of afterlife, relation between faith and reason, and interrelated issues concerning justification for/content of religious belief. Considers similarities and differences on these issues among Judaism, Christianity, and Islam. Open only to students in the Duke in Turkey summer program. Instructor: Guzeldere. One course. C-L: Cultural Anthropology 120B, Religion 161V, International Comparative Studies 102F, Turkish 136

136. **The Birth of Reason in Ancient Greece. CCI, CZ, EI** A study of the Classical Greeks' pronounced emphasis on the rational aspect of human nature, which enabled them to lay the foundations for subsequent intellectual developments in western thought. The Athenian Empire as a case study for an investigation of the five major ancient ethical systems. Taught only in the Duke Greece Summer Study Abroad program. Instructor: Ferejohn. One course.

137. **Political Philosophy of Globalization. CCI, CZ, EI, SS** Examination of the claim made for and against the expansion of free exchange on economic, political, and cultural institutions and conditions, from the perspectives of competing ethical theories and political philosophies. Taught only in the Duke in Geneva Summer Study Abroad program. Instructor: Rosenberg. One course. C-L: Political Science 100C, Public Policy Studies 104

138. **Analytic Philosophy in the Twentieth Century. CZ, R** An historical survey from Frege, Moore, Russell, and the logical positivism of the Vienna Circle to current developments. Philosophers covered include Wittgenstein, Ryle, Austin, Quine, and Davidson. Prerequisite: one philosophy course or consent of instructor. Instructor: Einheuser, Sanford or Sterrett. One course.


145. **Philosophy of Economics. EI, SS** Foundations, aims, and methods of economics, including game theory, nature and limits of welfare economics, economic approach to political and social institutions, relationship of economic theory to empirical evidence, and role of models. Prerequisite: one philosophy course and either Economics 105 and 110 or Economics 139; or consent of the instructor. Instructors: Hoover or Rosenberg. One course. C-L: Economics 137

146. **Prisoner's Dilemma and Distributive Justice (A, C-N). EI, SS** One course. C-L: see Political Science 103; also C-L: Economics 103, Information Science and Information Studies, Politics, Philosophy, and Economics

149. **Introduction to Cognitive Neuroscience (B, C). NS** One course. C-L: see Psychology 112; also C-L: Neurobiology 112, Visual Studies 124F

150. **Logic and Its Applications. QS** One course. C-L: see Mathematics 188; also C-L: Computer Science 148

162. **Human Rights in Theory and Practice. CCI, CZ, EI, SS** One course. C-L: see Political Science 162; also C-L: Public Policy Studies 162, Documentary Studies, Ethics, Global Health

163. **Chinese Philosophy. CCI, CZ, EI** The major schools of classical Chinese philosophy: Confucianism, Moism, and Taoism. Confucianism on the ideals of harmonious human life; Moism's charge that Confucianism encourages an unjustified partiality toward the family;
Taoism's claim that no logically consistent set of doctrines can articulate the "Truth." Debates and mutual influences among these philosophies. Comparisons between Chinese and Western cultures with respect to philosophical issues and solutions. Instructor: Wong. One course. C-L: Ethics

165. Politics, Philosophy, and Economics Capstone (A, C-N). R, SS One course. C-L: see Political Science 165; also C-L: Economics 104, Politics, Philosophy, and Economics


184S. Classical and Contemporary Political Theory. EI, SS Examines crucial debates in classical and contemporary political thought, especially question of individual freedom, from end of English Civil War to present day. Equips students with theoretical expertise to make persuasive arguments of their own. Not open to students who have taken Philosophy 107, Political Science 123, or Political Science 126. If you take this course you cannot get credit for Philosophy 107, Political Science 123, or Political Science 126. Open only to students in the Duke in Oxford program. Consent of instructor required. Instructor: Stears. One course. C-L: Political Science 185S

185S. Science, Ethics, & Society. CZ, EI Major recent public debates involving science, ethics, and policy in Britain and the United States. Exploration of issues ranging from stem cell research and global warming to health care policy and the teaching of evolution, as differently framed in the two countries. Examination of scientific, philosophical, and theological dimensions of such controversies, and how their manifestations in the public realm illuminate the relationships between scientists and laypersons, academic and popular culture, and public attitudes toward government and regulation. Open only to students in the Duke in Oxford program. Instructor consent required. Instructor: Ward. Two courses. C-L: Religion 161WS

186. Marx, Nietzsche, Freud. CCI, CZ, SS One course. C-L: see German 186; also C-L: Literature 186A, Political Science 195

186D. Marx, Nietzsche, Freud. CCI, CZ, EI, SS One course. C-L: see German 186D; also C-L: Literature 186AD, Political Science 195D

191. Independent Study. Individual reading in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to highly qualified students in the junior and senior year with consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing a significant analysis and interpretation of a previously approved topic. Open only to highly qualified students in the junior and senior year with consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

195. Special Topics in Philosophy. Instructor: Staff. One course.

196S. Seminars in Philosophy. CZ Instructor: Staff. One course.

197S. Seminars in Philosophy. CZ Instructor: Staff. One course.

For Seniors and Graduates

203S. Contemporary Ethical Theories. CZ, EI, SS The nature and justification of basic ethical concepts in the light of the chief ethical theories of twentieth-century British and American philosophers. Consent of instructor required. Instructor: Flanagan, Golding, or Wong. One course. C-L: Political Science 289S, Women's Studies
206S. Responsibility. CZ, EI The relationship between responsibility in the law and moral blameworthiness; excuses and defenses; the roles of such concepts as act, intention, motive, ignorance, and causation. Instructor: Golding. One course.

208S. Political Values. CZ, EI Analysis of the systematic justification of political principles and the political values in the administration of law. Instructor: Golding. One course.

211S. Plato. CZ Selected dialogues. Instructor: Ferejohn. One course. C-L: Classical Studies 211S


218S. Medieval Philosophy. CCI, CZ, R Study of Augustine against background of late ancient Roman philosophy, and Thomas Aquinas and others against background of medieval Muslim philosophy, in particular Avicenna and Averroes, and Neoplatonism. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 218S

225S. British Empiricism. CZ A critical study of the writings of Locke, Berkeley, or Hume with special emphasis on problems in the theory of knowledge. Instructor: Schmaltz. One course.

227S. Continental Rationalism. CZ A critical study of the writings of Descartes, Spinoza, or Leibniz with special emphasis on problems in the theory of knowledge and metaphysics. Instructor: Schmaltz. One course.

228S. Recent and Contemporary Philosophy. CZ A critical study of some contemporary movements, with special emphasis on analytic philosophers. Instructor: Sterrett. One course. C-L: Linguistics 228S

229S. Topics in the History of Philosophy. CZ Topics in one or more periods in the history of philosophy (for example, ancient, medieval, or modern) such as skepticism, mind-body relations, the nature of persons and personal identity, the relation between physics and metaphysics, causation and explanation. Instructor: Flanagan, Ferejohn, Janiak, Rosenberg, Schmaltz, or Sterrett. One course.

231S. Kant's Critique of Pure Reason. CZ Instructor: Janiak. One course.

233S. Methodology of the Empirical Sciences. CZ, STS Recent philosophical discussion of the concept of a scientific explanation, the nature of laws, theory and observation, probability and induction, and other topics. Consent of instructor required. Instructor: Brandon or Rosenberg. One course.

234S. Problems in the Philosophy of Biology. NS, STS Selected topics, with emphasis on evolutionary biology: the structure of evolutionary theory, adaptation, teleological or teleonomic explanations in biology, reductionism and organicism, the units of selection, and sociobiology. Consent of instructor required. Instructor: Brandon or Rosenberg. One course. C-L: Biology 234S

236S. Hegel's Political Philosophy. EI, R, SS Within context of Hegel's total philosophy, an examination of his understanding of phenomenology and the phenomenological basis of political institutions and his understanding of Greek and Christian political life. Selections from Phenomenology, Philosophy of History, and Philosophy of Right. Research paper required. Instructor: Gillespie. One course. C-L: Political Science 236S, German 275S

237S. Nietzsche's Political Philosophy. CZ, EI, SS One course. C-L: see Political Science 226S; also C-L: German 276S

238S. Problems in the Philosophy and Policy of Genomics. CZ, R, STS, W An examination of normative, methodological, and metaphysical issues raised by molecular biology, and its relations to other components of biology, including human behavior. Instructor: Rosenberg. One course. C-L: Information Science and Information Studies

240S. Philosophical Psychology. CZ A study of recent work on the nature of the self and the nature and function of consciousness. Work from philosophy, psychology, cognitive
neuroscience, and evolutionary biology will be discussed. Instructor: Flanagan or Güzeldere. One course.


250S. Topics in Formal Philosophy. Topics selected from formal logic, philosophy of mathematics, philosophy of logic, or philosophy of language. Instructor: Einheuser. One course.

251S. Epistemology. CZ, R Selected topics in the theory of knowledge; for example, conditions of knowledge, skepticism and certainty, perception, memory, knowledge of other minds, and knowledge of necessary truths. Instructor: Dretske, Einheuser, or Sanford. One course.

252S. Metaphysics. CZ, R Selected topics: substance, qualities and universals, identity, space, time, causation, and determinism. Instructor: Einheuer or Sanford. One course.

255S. Topics in Philosophy of Mind. CZ, STS One or more topics such as mental causation, animal minds, artificial intelligence, and foundations of cognitive science. Includes relevant literature from fields outside philosophy (for example, psychology, neuroscience, ethology, computer science, cognitive science). Instructor: Dretske or Güzeldere. One course.

259. Introduction to Audition and Vocal Communication. One course. C-L: see Neurobiology 259; also C-L: Psychology 265, Music 259

266S. Topics in Early Modern Political Thought from Machiavelli to Mills. CCI, SS One course. C-L: see Political Science 266S

273S. Heidegger. CZ, EI, SS One course. C-L: see Political Science 273S

291S. Special Fields of Philosophy. CZ Instructor: Staff. One course.

292. Special Topics in Philosophy. CZ Topics vary each semester. Instructor: Staff. One course.

THE MAJOR

Requirements. Ten courses in philosophy, eight of which must be at the 100-level or above. The courses must include Philosophy 100 and 101; a course at the 100 level or above in value theory (for example, ethics, political philosophy); a course at the 100 level or above in metaphysics, epistemology, philosophy of mind, or philosophy of science, a course in logic (Philosophy 48, 103, or 150), and at least one seminar at the 200 level.

Departmental Graduation with Distinction

The department offers work leading to Graduation with Distinction. See the section on honors in this bulletin.

THE MINOR

Requirements. At least five courses, no more than two of which may be below the 100 level. No specific courses are required. All students who wish to pursue a minor are encouraged to seek advice from faculty members in the department.

Physics (PHYSICS)

Professor Gauthier, Chair; Professor Gao, Associate Chair for Teaching; Professor Oh, Director of Undergraduate Studies; Professors Aspinwell, Baranger, Behringer, Chang, Edwards, Gao, Goshaw, Greenside, Han, Howell, Johnson, Mueller, Palmer, Petters, Thomas, Tornow, and Weller; Associate Professors Bass, Chandrasekharan, Kotwal, Kruse, Pless, Samei, Scholberg, Socolar, Springer, Teitsworth, and Wu; Assistant Professors Finkelstein, Mehen, and C. Walter; Professors Emeriti Bilpuch, Evans, Fairbank, Meyer, Roberson, Robinson, Walker, and R. Walter; Associate Research Professor Phillips;
Assistant Research Professors Ahmed and Tonchev; Adjunct Professors Ciftan, Everitt, Guenther, Kolena, Lawson, Rogosa, Skatrud, and West; Adjunct Assistant Professors Dutta and Vylet; Visiting Professor Brown; Lecturer McNairy; Lecturing Fellow Nappi

A major or a minor is available in this department.

Through the study of physics, students undertake a systematic examination of the objects that make up the natural universe and their interactions with each other. The knowledge and analytical skills thus obtained are basic to the study of the sciences and engineering. The department offers a number of courses for nonspecialists who wish to learn about the physicist's description of nature for its intrinsic intellectual value.

35. **Conceptual Physics. NS, STS** Concepts relevant for the explanation of common physical phenomena and their impact on society. Understanding of fundamental principles of Physics that underlie the modern world in which we live. Exploring examples of how these apply to critical technologies that make modern civilization possible. Intended for students not majoring in science or engineering; no previous knowledge of Physics is assumed. Instructor: Socolar or McNairy. One course.


38S. **Physics Research and the Economy. NS, STS** Analyses of the role of physics in the development of commercial technologies, with emphasis on curiosity driven research. Seminar requiring independent investigations of the intellectual origin of technological devices, with equal attention to physics principles and political or socioeconomic influences on research funding and product development. No prior instruction in physics assumed. Instructor: Howell. One course.

41L. **Fundamentals of Physics. NS** First semester of a two-semester course series. For students interested in majoring in physics; taken in the freshman year. Basic principles of classical physics. Emphasis on laying a foundation for further study of physics. Topics include: vector algebra tools, the description of motion, Newton's Laws, work and energy, systems of particles, conservation laws, rotation, gravity, elastic properties of solids, mechanics of fluids, properties of gases, Laws of Thermodynamics, oscillations, mechanical waves, and sound. Closed to students having credit for Physics 53L, 61L. Prerequisites: Mathematics 31 and 32 or equivalent; Mathematics 32 may be taken concurrently. Instructor: Chandrasekharan or Brown. One course.

42L. **Fundamentals of Physics. NS** Second semester of a two-semester course series. For students interested in majoring in physics; taken in the freshman year. Basic principles of electromagneticism. Emphasis on laying the foundation for further study in a physics program. Topics include: electric fields, Gauss's Law, potential, capacitance, current, DC circuits, magnetic fields, Ampere's Law, electric and magnetic forces, magnetic induction, Faraday's Law, AC circuits, Maxwell's field, equations, electromagnetic waves and special relativity. Closed to students having credit for Physics 54L or 62L. Prerequisites: Mathematics 31 and 32 or equivalent. Instructor: Brown. One course.

47S. **Physics and the Universe. NS** Exploration of our understanding of the universe, including the formation of large scale structure, galaxies, stars, the elements, and life. Scientific innovations driving this picture including esoteric theories such as general relativity and string theory, and technological breakthroughs such as the Hubble space telescope and gravitational wave detectors. Open only to students in the Focus Program. Instructor: Mueller. One course.
49S. First-Year Seminar. Topics vary each semester offered. Instructor: Han. One course.


53L. General Physics I. NS First part of a two-semester, calculus-based, physics survey course for students planning study in medicine or the life sciences. Topics: kinematics, dynamics, systems of particles, conservation laws, statics, gravitation, fluids, oscillations, mechanical waves, sound, thermal physics, laws of thermodynamics. For credit, enrollment in Physics 53L and a lab/recitation (Physics 53L9,R) section required. Students planning to major in physics should enroll in Physics 41L, 42L in their freshman year. Closed to students having credit for Physics 41L, 61L, or 63L. Prerequisites: one year of college calculus (or equivalent) such as Mathematics 25L, 26L, or 31. Mathematics 32 recommended. Instructor: McNairy or Tornow. One course. C-L: Marine Sciences

54L. General Physics II. NS The second part of a two-semester calculus based course providing a survey of the principles of physics for students planning to study medicine or life sciences. Topics include: electrostatic fields and potential, capacitors, DC circuits, magnetic fields, electromagnetic induction, Maxwell's equations, electromagnetic waves, properties of light (including reflection, refraction, polarization), geometric optics, wave optics (interference and diffraction), atomic and nuclear physics. Students must enroll in both a lecture (Physics 54L) and a lab/recitation (Physics 54L9,R) section in order to receive credit for the course. Closed to students having credit for Physics 42L, 62L or 63L. Prerequisites: Physics 41L, 61L, or 53L. Instructor: McNairy and Thomas. One course. C-L: Marine Sciences

55. Introduction to Astronomy. NS How observation and scientific insights can be used to discover properties of the universe. Topics include: an appreciation of the night sky, properties of light and matter, the solar system, how stars evolve and die, the Milky Way and other galaxies, the evolution of the universe from a hot Big Bang, exotic objects like black holes, and the possibility for extraterrestrial life. Prerequisite: high-school-level knowledge of algebra and geometry. Instructor: Greenside or Plesser. One course. C-L: Visual Studies

61L. Introductory Mechanics. NS The fundamentals of classic physics. Topics include: vectors, units, Newton's Laws, static equilibrium, motion in one and two dimensions, rotation, conservation of momentum, work and energy, gravity, simple and chaotic oscillations. Numerical methods used to solve problems in a workstation environment. Intended principally for non-physics majors in the physical sciences and engineering. Students planning a major in physics should enroll instead in Physics 41L, 42L in their freshman year. Closed to students having credit for Physics 41L or 53L. Prerequisites: Mathematics 31, 32, or equivalent; Mathematics 32 may be taken concurrently with Physics 61L. Instructor: Scholberg. One course.

62L. Introductory Electricity, Magnetism, and Optics. NS Intended principally for students in engineering and the physical sciences. Topics include: electric charge, electric fields, Gauss's Law, potential, capacitance, electrical current, resistance, circuit concepts, magnetic fields, magnetic and electric forces, Ampere's Law, magnetic induction, Faraday's Law, inductance, Maxwell's Equations, electromagnetic waves, and geometrical optics. Not open to students having credit for Physics 42L or 54L. Prerequisites: Physics 61L and Mathematics 32 or the equivalents. Instructor: Goshaw. One course.

63L. Applications of Physics: A modern perspective. NS Intended principally for students in engineering and the physical sciences as a continuation of Physics 62L. Topics include: mechanics from a microscopic perspective, the atomic nature of matter, energy, energy quantization, entropy, the kinetic theory of gases, the efficiency of engines, electromagnetic radiation, the photon nature of light, physical optics and interference, waves and particles, applications of wave mechanics. Not open to students having credit for Physics 42L or 54L.
Prerequisites: Physics 62L and Mathematics 103 or the equivalents. Instructor: Teitsworth. One course.

100. 20th Century Physics. NS Survey of modern physics including relativity and the quantum physics of atoms, nuclei, particles, quarks, condensed matter, and lasers. Not applicable toward a major in physics. Prerequisite: Physics 42L, 54L, or 62L and Mathematics 103 (may be taken concurrently). Instructor: Han. One course.


105. Introduction to Astrophysics. NS Basic principles of astronomy treated quantitatively. Cosmological models, galaxies, stars, interstellar matter, the solar system, and experimental techniques and results. Prerequisite: Mathematics 31 and Physics 42L, 52L, 54L, 62L, or consent of instructor. Instructor: Kruse. One course.

115L. Basic Research Skills for Physics. Covers basic skills necessary in physics research. Possible topics include document software (LaTex, MS Office), computer interfacing (LabView), C++ (or Java) programming, graphing and statistical analysis software (PAW, ROOT, Mathematica, Matlab), and Laboratory techniques (Vacuum, Nuclear/HEP Electronics, sensors, optics). Instructor: Kotwal. Half course.

143L. Optics and Modern Physics. NS Intended as a continuation of Physics 41L, 42L. Waves and Optics. Introduction to Quantum Mechanics and Special Theory of Relativity. Applications in condensed matter, particle physics, and cosmology. Prerequisite: Physics 42L, 52L, 54L, or 62L, and Mathematics 103 (may be taken concurrently). Instructor: Socolar. One course.

171L. Electronics. NS Elements of electronics including circuits, transfer functions, solid-state devices, transistor circuits, operational amplifier applications, digital circuits, and computer interfaces. Lectures and laboratory. Prerequisites: Physics 42L, 54L, 62L, or equivalent; Mathematics 103 or equivalent. Instructor: Walter. One course. C-L: Information Science and Information Studies

176. Thermal Physics. NS Thermal properties of matter treated using the basic concepts of entropy, temperature, chemical potential, partition function, and free energy. Topics include the laws of thermodynamics, ideal gases, thermal radiation and electrical noise, heat engines, Fermi-Dirac and Bose-Einstein distributions, semiconductor statistics, kinetic theory, and phase transformations. Also taught as Electrical Engineering 176. Prerequisites: Mathematics 103 or equivalent and Physics 41L, 53L, 62L, or equivalent. Instructor: Behringer. One course.

181. Intermediate Mechanics. NS Newtonian mechanics at the intermediate level, Lagrangian mechanics, linear oscillations, chaos, dynamics of continuous media, motion in noninertial reference frames. Prerequisite: Mathematics 107 or equivalent (may be taken concurrently). Instructor: Bass. One course.

182. Electricity and Magnetism. NS Electrostatic fields and potentials, boundary value problems, magnetic induction, energy in electromagnetic fields, Maxwell's equations, introduction to electromagnetic radiation. Prerequisite: Mathematics 107 or equivalent. Instructor: Mehen. One course.

185. Modern Optics I. NS Optical processes including the propagation of light, coherence, interference, and diffraction. Consideration of the optical properties of solids with applications of these concepts to lasers and modern optical devices. Prerequisite: Electrical and Computer Engineering 170. Instructor: Staff. One course. C-L: Visual Studies 123A, Electrical and Computer Engineering 122

193. Capstone Design of Applied Science. NS, R, STS A team activity based on design problems obtained from industry involving the formulation and written presentation of a solution to the design problem for faculty review; the execution and evaluation of the approved design; and a written and oral presentation of the performance of the design
solution for faculty review. The Capstone Design project exposes students to basic scientific concepts and to the processes by which scientific and technological advances are made and incorporated into society. Instructor: Guenther. One course.

For Seniors and Graduates

201. Survey of Nonlinear and Complex Systems. NS, QS Survey lectures by Duke experts active in CNCS research; regular attendance in the CNCS seminar series; and a weekly meeting to discuss the lectures and seminars. May be repeated once. Prerequisite: Physics 213. Instructor: Behringer. Half course.


205. Introduction to Nuclear and Particle Physics. NS Introductory survey course on nuclear and particle physics. Phenomenology and experimental foundations of nuclear and particle physics; fundamental forces and particles, composites. Interaction of particles with matter and detectors. SU(2), SU(3), models of mesons and baryons. Weak interactions and neutrino physics. Lepton-nucleon scattering, form factors and structure functions. QCD, gluon field and color. W and Z fields, electro-weak unification, the CKM matrix, Nuclear-nucleon interactions, properties of nuclei, single and collective particle models. Electromagnetic and hadronic interactions with nuclei. Nuclear reactions and nuclear structure, nuclear astrophysics. Relativistic heavy ion collisions. Prerequisites: for undergraduates, Physics 211, 212; for graduate student, Physics 315, which may be taken concurrently. Instructor: Weller. One course.

211. Quantum Mechanics I. NS Experimental foundation, wave-particle duality, the Schroedinger equation and the meaning of the wave function, analytical and numerical solution of one-dimensional problems, formulation in terms of states and operators, angular momentum and spin, applications to the harmonic oscillator and hydrogen atom. Prerequisite: Mathematics 104 or 107 and Physics 143L. Instructor: Scholberg. One course.

212. Quantum Mechanics II. NS Further development of quantum mechanics with applications. Topics include: perturbation methods (time-independent and time-dependent), path integrals, scattering theory, local density theory, elements of relativistic quantum mechanics, and miscellaneous examples drawn from atomic, condensed matter, particle, and nuclear physics. Prerequisite: Physics 211. Instructor: Mehen. One course.

213. Nonlinear Dynamics. QS, R Introduction to the study of temporal patterns in nonequilibrium systems. Theoretical, computational, and experimental insights used to explain phase space, bifurcations, stability theory, universality, attractors, fractals, chaos, and time-series analysis. Each student carries out an individual research project on a topic in nonlinear dynamics and gives a formal presentation of the results. Prerequisites: Computer Science 6, Mathematics 107, and Physics 41L, 42L, or equivalent. Instructor: Behringer. One course. C-L: Computer Science 264

214. Biophysics in Cellular and Developmental Biology. NS Application of the experimental and theoretical methods of physical sciences to the investigation of cellular and developmental systems. Topics include the physical techniques for investigating biological organization and function as well as examples of key applications. Prerequisites: Calculus-based introductory physics, Biology 119 or equivalent or consent of instructor. Instructor: Edwards (Physics) and Kiehart (Biology). One course. C-L: Biology 214

217S. Advanced Physics Laboratory and Seminar. NS, R, W Experiments involving the fields of electricity, magnetism, heat, optics, and modern physics. Written and oral presentations of results. Instructor: Oh. One course.

222S. General Relativity. NS Review of special relativity; ideas of general relativity; mathematics of curved space-time; formation of a geometric theory of gravity; Einstein field
equation applied to problems such as the cosmological red-shift and blackholes. Prerequisite: Physics 181 and Mathematics 107 or equivalents. Instructor: Plesser. One course.

225. Independent Study: Advanced Topic. Reading in a field of special interest under the supervision of a faculty member. Intended for students interested in studying textbook topics not offered in regularly available courses. At least a final examination is required and the format is determined by the supervising faculty member. Consent of instructor required. Instructor: Staff. One course.

226. Research Independent Study. R Original research conducted under the supervision of a faculty member. At least one written substantive report or a poster presentation is required. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

227. Thesis Independent Study. R, W Original research conducted under the supervision of a faculty member leading to a substantial written report that follows standard guidelines for the presentation of physics research. The report must be revised at least once in response to feedback from the instructor. Typically taken following Physics 226 or summer research experience with the instructor. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


246S. Selected Topics in Theoretical Physics. NS Topics vary as indicated on Physics Department website. Consent of Instructor required. Instructor: Staff. One course.

252. Introduction to Geophysics. NS, R One course. C-L: see Earth and Ocean Sciences 252


265. Advanced Optics. This course presents a rigorous treatment of topics in Photonics and Optics targeted at students with an existing photonics or optics background. Topics will include, Optical Sources, Statistical Optics and Coherence Theory, Detection of Radiation; Nonlinear Optics; Waveguides and Optical Fibers; Modern Optical Modulators; Ultrafast lasers and Applications. These topics will be considered individually and then from a system level perspective. Prerequisite: ECE 122 or equivalent. Instructor: Kim. One course.

271. Quantum Optics. NS The linear and nonlinear interaction of electromagnetic radiation and matter. Topics include lasers, second-harmonic generation, atomic coherence, slow and fast light, squeezing of the electromagnetic field, and cooling and trapping of atoms. Prerequisite: Physics 212 and 230. Instructor: Gauthier. One course.

272. Quantum Information Science. One course. C-L: see Electrical and Computer Engineering 227


292. General Relativity. NS This course introduces the concepts and techniques of Einstein's general theory of relativity. The mathematics of Riemannian (Minkowskian) geometry will be presented in a self-contained way. The principle of equivalence and its
implications will be discussed. Einstein's equations will be presented, as well as some important solutions including black holes and cosmological solutions. Advanced topics will be pursued subject to time limitations and instructor and student preferences. Prerequisite: A familiarity with the special theory and facility with multivariate calculus. Instructor: Plesser or Aspinwall. One course. C-L: Mathematics 236

293. Representation Theory. QS One course. C-L: see Mathematics 253

THE MAJOR

Students majoring in physics are prepared for work in a wide variety of commercial and industrial organizations as well as governmental laboratories. They are also prepared for graduate work in physics, engineering and other science disciplines, or for the study of medicine. Students planning to major in physics should enroll in Physics 41L, 42L in their freshman year. They should also arrange to complete the necessary mathematics as soon as possible.

For the A.B. Degree

Prerequisites. Physics 41L and 42L or 53L and 54L, or equivalents; Mathematics 31, 32, 103, and one additional course at or above the 100 level.

Major Requirements. Physics 143L, 176, 181, 211, one among the laboratory courses 171L, 193, 217S, and 226 (involving experimental research), and one other course in physics above 100 except for Physics 115 and Physics 230. (For the major, Physics 230 is considered to be a mathematics course.)

For the B.S. Degree

Prerequisites. Physics 41L and 42L or 53L and 54L, or equivalents; Mathematics 31, 32, 103, 107, or equivalents, and 108 or equivalents.

Major Requirements. Physics 143L, 176, 181, 182, 211, 212, 217S, one among the laboratory courses 171L, 193, and 226 (involving experimental research), plus one other course in physics above 100 except for Physics 115 and Physics 230. (For the major, Physics 230 is considered to be a mathematics course.) Students planning graduate study in physics are urged to take one additional elective in physics and one in mathematics.

Departmental Graduation With Distinction

The department offers upperclassmen the possibility of being associated with research conducted in the department. This work may lead to Graduation with Distinction. Consult with the director of undergraduate studies during or before the junior year and see the section on honors in this bulletin.

THE MINOR

Requirements. Physics 41L and 42L or 53L and 54L, or equivalents; Physics 143L; plus two additional physics courses numbered above 100, except for Physics 115 and Physics 230.

Policy Journalism and Media Studies

Professor Mickiewicz, Director

A certificate, but not a major, is available in this program.

The DeWitt Wallace Center for Communications and Journalism offers an interdisciplinary certificate in policy journalism and media studies, which helps to prepare students for careers in media policy, journalism, and associated professions in the rapidly shifting arena of global communications. Courses for the certificate focus on educating students about the institutional, economic, and political complexities of media policies worldwide through the study of the interaction between the key players in media policymaking, journalism, media-concerned non-governmental organizations (NGOs), and academics specializing in media studies. Students will research contemporary media policy-making and its impact on the practice of journalism in order to learn about the broad political
dynamics which condition both United States’ and international media policy, past and present. Students will also examine conceptions of media, media policy, and journalism in a global market, as well as the current educational challenges confronting journalists whose knowledge needs to be increasingly specialized in order to explain complex global situations to their audiences.

PROGRAM REQUIREMENTS

The Policy Journalism and Media Studies Certificate is open to all undergraduates. Candidates must complete the prescribed combination of six courses, at least four at the 100 level or above. The six courses must include: three core courses, two of which must be the capstone course, Public Policy Studies 202 (Policy Journalism and Media Studies), and Public Policy Studies 125S (News As Moral Battleground), and a third core course, either Public Policy Studies 118S, 119S, or 120S, (Television Journalism, Magazine Journalism, or Newspaper Journalism); as well as three elective courses from the list below. New courses, special topics courses, and independent study courses may also be approved as elective courses by the program. Each student is also required to complete an internship in the field prior to taking the capstone course (the internship must be approved before it is begun). No more than four courses may be in a single department; if students take four Public Policy Studies courses, the fourth course must be cross-listed with another department. No more than two courses that are counted toward this certificate may satisfy the requirements of any major, minor, or other certificate program. A minimum of three courses must be taken by the end of the junior year.

Students should register for the Policy Journalism and Media Studies Certificate at the Registrar’s Office (or, if they are declaring a major for the first time, through the Pre-Major Advising Center) and also see Professor Ken Rogerson in the DeWitt Wallace Center for Communications and Journalism, room 142, Terry Sanford Institute of Public Policy.

Core Course
125. News as Moral Battleground

Journalism Practical Core Course Cluster

Public Policy Studies
118S. Television Journalism
119S. Magazine Journalism
120S. News Writing and Reporting

Visual Studies
125BS. Television Journalism
125CS. Magazine Journalism
125ES. News Writing and Reporting

Capstone Course
202. Policy Journalism and Media Studies Capstone Course

Elective Courses

African and African American Studies
126S. The Press and the Public Interest
177S. Race and Equity
179. Separation and Inclusion

Cultural Anthropology
108. Fantasy, Mass Media, and Popular Culture
110. Advertising and Society: Global Perspective
116S. Advertising and Masculinity

Documentary Studies
176S. American Communities: A Photographic Approach
177S. Advanced Documentary Photography

English
101A. Introduction to Film
117CS. Advanced Composition: Writing for Publication
120. Advertising and Society: Global Perspective

Film/Video/Digital

101. Introduction to Film

History

188A. Genocide in the Twentieth Century

International Comparative Studies

103E. Fantasy, Mass Media, and Popular Culture

161B. Eastern Europe in Transition: Markets, Media, and the Mafia

Linguistics

120. Advertising and Society: Global Perspective

Literature

110. Introduction to Film

Political Science

100ES. Duke Summer Program: London

114. Public Opinion (A)

203S. Politics and Media in the United States (A)

276. Media in Post-Communist Societies

Public Policy Studies

117. Media and National Security

121S. Reporting Public Policy

122. Who Owns the Press

123S. Watchdogs and Muckrakers: Investigative Journalism and Public Policy

126. Information, Policy, and Ethics

127S. The Press and the Public Interest

163S. Telecommunications Policy and Regulation

173S. Race and Equity

174. Separation and Inclusion

176S. American Communities: A Photographic Approach

177S. Advanced Documentary Photography

221. Media and Democracy

243. Media in Post-Communist Societies

264S. Advanced Topics in Public Policy

268. Media Policy and Economics

Russian

125. Eastern Europe in Transition: Markets, Media, and the Mafia

246. Media in Post-Communist Societies

Sociology

121. Eastern Europe in Transition: Markets, Media, and the Mafia

160. Advertising and Society: Global Perspective

Theater Studies

171. Introduction to Film

Visual Arts

118S. American Communities: A Photographic Approach

119S. Advanced Documentary Photography

Visual Studies

103XS. American Communities: A Photographic Approach

103YS. Advanced Documentary Photography

110B. Fantasy, Mass Media, and Popular Culture

110E. Advertising and Society: Global Perspective

110FS. Advertising and Masculinity

121A. Introduction to Film

125A. Media and National Security

127B. Eastern Europe in Transition: Markets, Media, and the Mafia

251A. Media and Democracy

Polish

For courses in Polish, see “POLISH (POLISH)” on page 546, in Slavic and Eurasian studies.
Political Science (POLSCI)

Professor Munger, Chair; Professor Haynie, Associate Department Chair; Associate Professor Eldridge, Director of Undergraduate Studies; Professors Aldrich, Feaver, Fish, Gelpi, Gillespie, Grant, Grieco, Hamilton (public policy), Horowitz (law), Hough, Jentleson (public policy), Kitschelt, Knight, Kuran (economics), Lange, McClain, Michiewicz (public policy), Niou, Paletz, Price, Remmer, Rohde, Rosenberg (philosophy), and Spragens; Associate Professors de Marchi, Hacohen (history), Mayer (public policy), McKean, Shi, and Wibbels; Assistant Professors Beramendi, Büthe, Charney (public policy), Downes, Goss (public policy), Kelley (public policy), Krishna (public policy), Leventoglu, Siegel (law), and Trejo; Professors Emeriti Hall, Holsti, and Johns; Research Professors Brennan, Euben, and Soskice; Adjunct Professors Engstrom, MacKuen, Rabinowitz, Stinson, and Vanberg; Adjunct Associate Professor Kessler; Associate Professor of the Practice Maghraoui

A major or a minor is available in this department.

Courses in political science for undergraduates are offered in four fields: (A) American government and politics; (B) comparative government and politics; (C-N) normative political theory/(C-E) empirical political theory and methodology; and (D) international relations, law, and politics. In the course descriptions below the field within which the course falls is indicated by the appropriate letter symbol (A, B, C-N/C-E, D) after the course title. The area of knowledge designation is followed by the relevant curriculum codes. Courses numbered from 91 through 93 serve as an introduction both to the study of political science and to the subject matter and approaches of the relevant field. Middle and upper-level courses and seminars (numbered at the 100 and 200 levels respectively) consider in depth particular issues and topics within the field. Topical introductory seminars are offered to freshmen (49S). In addition, independent study under faculty supervision enables students to explore topics of special interest. Following the course descriptions, you will find the listing of courses by fields, information on internships, and requirements for the major, minor, and honors.

INTRODUCTORY COURSES

The following courses introduce the study of political science. Courses numbered 49S, and 91 through 93 serve as introductions to the discipline. Students ordinarily will take at least one of these courses before proceeding to more advanced courses. Some advanced courses may require a particular introductory course as a prerequisite.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

85AFCS. Issues in Twentieth-Century American Politics (A). EI, SS Changing focus on topics such as federal-state relations, the inter-relationships of the executive, legislative, and judicial branches of government; judicial review; the role of political parties and the impact of racial, gender, ethnic, and class identities in influencing public opinion and voting; the formulation and execution of various domestic and foreign policies. Examines the ethical, cultural, and political issues and controversies associated with maintaining civil liberties in the twentieth century. Open only to students in the Focus Program. Instructor: Staff. One course.

85CFCS. Issues in Twentieth-Century American Political Theory (C-N). EI, SS Contemporary issues of American political thought. Analysis of attempts to refurbish or develop alternatives to the dominant liberal tradition. How the liberal tradition and its alternatives influence various ethical and political issues and controversies within the twentieth century. Open only to students in the Focus Program. Instructor: Staff. One course.

85EFCs. Freedom and Responsibility: The Ethical Dimensions of Liberty (C-N). CZ, EI, SS, W The conflicting visions of freedom and responsibility that characterize the modern world; the possibility of leading ethical lives in the face of the conflicting demands that a complex vision of the good engenders. Readings include Luther, Hobbes, Locke, Mill,
Rousseau, Marx, Nietzsche. Open only to students in the Focus Program. Instructor: Gillespie. One course. C-L: Philosophy 85FCS

85FFCS. Hierarchy and Spontaneous Order: The Nature of Freedom in Political and Economic Organizations (C-N). EI, SS, W An examination, drawing on great works of political and economic thought, of ideal and real regimes to evaluate two opposed positions: that hierarchy and some form of imposed coercive organization are essential to liberty and human self-realization, and that the most important kinds of order and action in human societies are spontaneous and voluntary. Close scrutiny and interpretation of texts on religion and historical arguments. Readings include Aristotle, Plato, Hobbes, Locke, Rousseau, and other classic texts. Open only to students in the Focus Program. Instructor: Munger. One course.

85GFCS. Ancient and Modern Liberty (C-N). CCI, CZ, EI, SS Introduction to various conceptions of liberty in Greek and Roman political and philosophical writing. Considerations of such questions as: what is distinctive about the modern conceptions of political and civil liberty; whether there is any necessary ethical connection between liberty and virtue, or whether there is liberty and active citizenship, or liberty and privacy; whether ancient conceptions of liberty can still serve as a model in contemporary politics and should be considered exemplary or inferior to modern conceptions of freedom. Open only to students in the Focus Program. Instructor: Grant. One course. C-L: Classical Studies 86FCS

85HFCS. Human Rights at Home and Abroad (C-N). CCI, EI, SS The contemporary human rights movement and how it shapes societies at home and abroad. Topics include theoretical debates over the meaning, justification, and extent of human rights, the international law and politics of human rights, and the domestic and grassroots struggles that shape the theory and practice of rights. How the human rights movement is, and how it ought to be evolving. Open only to students in the Focus Program. Instructor: Staff. One course.

85JFCS. Design for a Small Planet (B). EI, SS, STS Causes and remedies for maldistributed over-consumption of environmental resources in the modern world. Avoiding ecocrash and war by designing ecologically sound alternatives, political and economic constraints, political and economic tools available as remedies. Open only to students in the Focus Program.

85KFCS. Reason, Virtue, and Rights (C). CCI, CZ, EI, SS The theoretical meanings and practical consequences of historical views of rights; their philosophical resuppositions in relation to a view of human nature and of reason. Open only to students in the Focus Program. Instructor consent required. Instructor: Hull. One course.

85TFCS. Conflict, Cooperation, and the Ideas of Democracy (A). CCI, SS Topics include political tolerance; the mismatch between the ideal operation of American democracy and its real and perceived actual operation; how popular entertainment treats the idea of democracy as a way to solve collective problems; and Social Identity Theory's findings on the ease of creating the idea that group boundaries exist, are important, and the ensuing political and social consequences especially for racial, ethnic, and other intergroup conflicts. Open only to students in the Focus Program. Instructor: Transue. One course.

90A. American Government and Politics (A). Credit for Advanced Placement on the basis of the College Board examination in American government and politics. Does not satisfy course requirements of the political science major. One course.

90B. Comparative Government and Politics (B). Credit for Advanced Placement on the basis of the College Board examination in comparative government and politics. Does not satisfy course requirements of the political science major. One course.

91. The American Political System (A). SS Focus on the institutional structure of the American national government, the goals of the political actors who operate within it, and the contexts that affect political action. Institutional analysis of the effects of the original constitutional structure and of developments since. Emphasis on the relationship between
the preferences of the general public and the decisions of government actors. Instructor: Staff. One course.

91D. The American Political System (A). SS Same as Political Science 91 except instruction is provided in two lectures and one small discussion meeting each week. Instructor: Munger and Paletz. One course.

92. States, Markets, and Democratization: Introduction to Comparative Politics (B). CCI, EI, SS Relationships among economic development, democratic institutions, and civil order; factors promoting the emergence of democracy and/or protecting democracy against decay; peaceful and conflict-ridden multiethnic societies; hazards of transition in the world's newest democracies; and corruption in both successful and unsuccessful economies. Instructor: McKean or staff. One course. C-L: International Comparative Studies

92D. Democracy, Development, and Violence: Introduction to Comparative Politics. CCI, EI, SS Analysis of creation and break down of political order. Exploration of why some societies establish democratic political orders but others dictatorial rule; how democracies and dictatorships work; impact of political regimes and institutions on economic growth, development, poverty, and inequality; civil wars and revolutions. Goal is to understand how political regimes and economic development shape the dynamics of collective violence and how political orders collapse. Examples drawn from contemporary world history and current world affairs, including advanced capitalist democracies and low- and middle-income countries. Instructor: Staff. One course.

93. Elements of International Relations (D). CCI, SS The theory and practice of international politics and foreign policy; analysis of the various elements of national power and its impact on differing world views and foreign policy behavior, the instruments of foreign policy, and the controls of state/nation behavior across different historical periods and from different national and analytical perspectives. Instructor: Staff. One course.

93D. Elements of International Relations (D). CCI, SS Same as Political Science 93 except instruction is provided in two lectures and one small discussion meeting each week. Instructor: Eldridge or Feaver. One course.

96D. Political Freedom (C-N). CCI, EI, SS America as the land of the free and a place of slavery; political freedom in relation to power justice and equality, intelligence, faith and freedom, freedom and gender, class and race. Authors include Marx, Milton Friedman, Plato, Sophocles, Toni Morrison, Dostoevsky, DeTocqueville, Martin Luther King, Jr., Malcolm X, Catherine MacKinnon, and Hannah Arendt. Instructor: Euben. One course.

98. Introduction to Canada (B). SS One course. C-L: see Canadian Studies 98; also C-L: History 98, Sociology 98, International Comparative Studies 98

STUDY ABROAD COURSES


100B. Duke Semester/Academic Year Program: Germany. CCI, FL, SS Germany of Today: A European Superpower? (B) Taught in German. Instructor: Staff. One course. C-L: International Comparative Studies

100C. Political Philosophy of Globalization. CCI, CZ, EI, SS One course. C-L: see Philosophy 137; also C-L: Public Policy Studies 104

100ES. Duke Summer Program: London. CCI, SS .01 Media and Politics in Britain (B). Instructor: Staff. Two courses. C-L: Policy Journalism and Media, International Comparative Studies

100F. Duke Semester Program: Florence. CCI, SS Instructor: Staff. One course.
100G. Themes in Chinese Culture and History. CCI, CZ, SS One course. C-L: see Cultural Anthropology 163; also C-L: History 163G, International Comparative Studies
100GA. Directed Study on Contemporary China. FL, R One course. C-L: see Chinese 193; also C-L: Cultural Anthropology 163A
100I. Duke Summer Program: Oxford. CCI, SS .01 Political System of Modern Britain (B). Instructor: Staff. Two courses. C-L: International Comparative Studies
100M. Duke Summer/Semester Program: Madrid. CCI, SS Instructor: Staff. One course.
100N. Duke Semester Program: Ecuador. CCI, SS Instructor: Staff. One course.
100P. Duke Summer/Semester Program: St. Petersburg, Russia. CCI, SS Permission of instructor required. Instructor: Staff. One course.
100T. Duke Summer/Semester Program: France. CCI, FL, SS Instructor: Staff. One course.
100V. Duke Semester Program: Venice. CCI, SS Topics differ by section. One course.
100Z. Duke-Administered Study Abroad: Advanced Special Topics in Political Science. CCI, SS Topics differ by section. Instructor: Staff. One course.
185S. Classical and Contemporary Political Theory. EI, SS One course. C-L: see Philosophy 184S

OTHER UNDERGRADUATE COURSES
102. Introduction to Political Inquiry. SS Introduction to the deductive, quantitative, and historical techniques used in empirical inquiry in political science. Examines the study of politics as a social science and explores the assumptions underlying various methodologies used in the field. Reviews methods of measurement, comparison, and the construction of empirical and theoretical models of political phenomena. Intended for students who have taken at least one political science course, but there are no prerequisites. Not open to students who have previously taken this course as POLSCI 107. Instructor: Staff. One course.
103. Prisoner's Dilemma and Distributive Justice (A, C-N). EI, SS Economic, political, and philosophical perspectives on distributive justice and the problems in each discipline raised by variations on the prisoner's dilemma. Classic texts include Hobbes and Hume, Smith and Marx, Mill and Rawls. Gateway course to the Politics, Philosophy, and Economics certificate program. Joint course with the University of North Carolina-Chapel Hill so may be offered on both campuses during the semester. Prerequisites: Economics 1D or Economic 51D and Philosophy 107 or Political Science 123. Instructor: Brennan, Munger, or Rosenberg. One course. C-L: Economics 103, Philosophy 146, Information Science and Information Studies, Politics, Philosophy, and Economics
104. Politics and Literature (C-N). ALP, EI, SS The enduring questions of ethical and political issues and controversies as expressed in political philosophy and politics and as illustrated in literature. Comparative historical, literary, and philosophical analysis. Instructor: Curtis. One course.
105. Law and Constitutional Reform in Russia and the Former Soviet Union (B). CCI, CZ One course. C-L: see Russian 140; also C-L: International Comparative Studies 161C
106. International Security (D). EI, SS, STS The various causes, processes and impacts of international conflict in contemporary international affairs. Factors that contribute to conflict, including the impact of scientific and technological developments on war and the
ethical arguments and beliefs associated with war making. Contemporary and future threats to international security. Instructor: Feaver. One course.

106D. International Security (D). EI, SS, STS Same as Political Science 106 except instruction is provided in two lectures and one small discussion meeting each week. Instructor: Feaver. One course.

108. The American Presidency (A). EI, SS The American presidency and its influence on American government and politics across various historical periods. The role of the presidency as it relates to important ethical and political issues and controversies at various times in American political history. Comparison with executive offices in various countries. Instructor: Hough or Paletz. One course.

109. Left, Right, and Center: Competing Political Ideals (C-N). CCI, EI, SS Analysis of liberalism, conservatism, socialism, and their diverse conceptions of justice, freedom, community, and equality. Exploration of how these political philosophies interpret various social, religious, and political issues. The origins of these ideologies in early modern European thought. Instructor: Staff. One course.

109D. Left, Right, and Center: Competing Political Ideals (C-N). CCI, EI, SS Same as Political Science 109 except instruction provided in two lectures and one small discussion meeting each week. Instructor: Staff. One course.

110. American Political Parties (A). SS Introduction to the American party system. Social choice, structural-functionalism, and systems theory: why parties might be a necessary component of advanced industrial societies. Comparison of different social settings (ethnic, religious, class divisions) and how constitutional and party structures may relate. Tripartite theory of parties: parties in the electorate, as organizations, and in government. Historical development of parties in the United States since the Founding. The impact of media, regional, racial, gender, ethnic, and class identities on American party development. Instructor: Kornberg. One course.


112A. American Values, Institutions, and Culture--1760 to 1845 (A). CCI, SS Introduction to American politics and institutions. Political thought of the American and French revolutions; the formation of the institutions of American government; the role of property, especially slavery, in shaping American politics and policy; and the expansion of American ambition, through "manifest destiny" at home and the Monroe doctrine abroad. Instructor: Munger. One course.

112S. Critiques of the Contemporary American Political System (C-N). EI, SS Assessment of prominent arguments regarding alleged institutional weaknesses and ethical and cultural failings of contemporary American democratic society. Analysis and criticism of the conceptions of democratic ideals that inform those critiques. Instructor: Spragens. One course.

113. Issues of International Political Economy (D). CCI, R, SS A comparative, cross-cultural and cross-national examination of international political economy issues centering on trade, money and finance, and to a lesser degree the multinational enterprise. Examination of international economic issues of concern to developed and developing countries. Prerequisite: Political Science 93. Instructor: Grieco. One course. C-L: Markets and Management Studies

114. Public Opinion (A). EI, SS Theories of public opinion: childhood socialization, attitude formation, learning, expression, opinion/behavior link. Public attitudes toward central ethical and political issues and controversies at various times in American political history. Democratic norms and values, race and affirmative action, candidate impression
formation, and relation of elite and mass opinion. Origins, manifestations, and consequences of public opinion in American politics. Instructor: Staff. One course. C-L: Policy Journalism and Media

114S. Public Opinion (A). EI, SS Same as 114 except to be taught as a seminar. Instructor: Staff. One course.

116S. Post-World War II Europe and East Asia: A Comparative Perspective (D). CCI, SS, W The nations of contemporary Western Europe as a 'zone of peace,' a political-geographic space in which cooperation is highly robust and war is virtually unthinkable. The development of that zone in light of the persistence of major war in that area from the late fifteenth to the mid-twentieth centuries. The evolution of Western European politics and institutions since World War II (most importantly, the European Union); comparison with East Asia as another key region of the modern world that has not become a zone of peace but may be increasingly a zone of major conflict and even war. Instructor: Grieco. One course. C-L: International Comparative Studies

117. Comparative Government and Politics: Selected Countries (B). CCI, SS Special topics course treating the evolution and function of various national political systems at different stages of their historical and political development. The focus changes depending upon which nations and peoples are analyzed. Instructor: Staff. One course.

120. International Conflict and Violence (D). CCI, R, SS, STS The various causes, processes and impacts of violent international and domestic social conflicts in international affairs. Emphasis on analyzing various factors that contribute to violence, including the impact of scientific and technological developments on war and the ethical arguments and beliefs associated with war making in different cultures. Analysis of those factors in various cultures that hinder or contribute to peace making and peace keeping following the termination of war. Instructor: Eldridge. One course.

121. Political Psychology (A). CCI, SS How individuals interact with their political environment and with other individuals and groups. Theories and findings from both disciplines to gain deeper insights into political processes and decisions. Likely topics include individuals' political attitudes, decisions and judgments. Other likely topics include theories of how people cooperate with each other and how groups come into conflict with each other, psychological approaches to analyzing political leaders and/or the way members of different cultures process political information. Instructor: Transue. One course. C-L: Psychology 129A

122. Foundations of Modern International Politics (D). CCI, SS Causal mechanisms that relate domestic and international politics as introduced through basic game-theoretic examples. How domestic politics can affect state behavior and how international politics can reverberate on domestic politics. Discussion of various problem areas such as security, economics, and nationalism by focusing on institutions and processes. How globalization and culture affect the structure and institutions that govern domestic and international interactions. No prerequisite, but Political Science 93 recommended. Instructor: Staff. One course.

123. Introduction to Political Philosophy (C-N). EI, SS An intensive comparative examination of the nature and enduring problems of political philosophy through the confrontation, interpretation, and normative assessment of classic texts from the Greek polis to the present. Selected theorists and their arguments and beliefs within the Western political tradition concerning justice, the good life, freedom, community, power, authority, and others. Careful attention to the ways argument and rhetoric operate in texts of political philosophy, as well as diverse modes of interpretation. Instructor: Staff. One course. C-L: Ethics

123D. Introduction to Political Philosophy (C-N). EI, SS Same as Political Science 123 except instruction is provided in two lectures and one small discussion meeting each week. Instructor: Staff. One course.
124S. Human Rights Activism. CCI, EI, R, SS One course. C-L: see Cultural Anthropology 161S

125. Comparative Approaches to Global Issues (B, D). CCI, CZ, SS One course. C-L: see International Comparative Studies 125; also C-L: Cultural Anthropology 125, History 137, Religion 183, Sociology 125, Global Health, Global Health

126. Theories of Liberal Democracy (C-N). EI, SS Classic theorists, such as Locke, Rousseau, Mill, Tocqueville, Madison, and Marx, and contemporary theories of liberal democracy. Attention to the historical setting, the normative philosophical presuppositions, and the ethical and policy implications of the theories. Instructor: Grant or Spragens. One course.

127. Law and Politics (A). SS Examination of the nature and functions of law and legal institutions through critical interpretation of legal texts and practices. Relationships among bench, bar, legislators, and administrators in the development of public as well as private law. Attention to judicial reasoning used in the resolution of cases and controversies involving the common law, statutes including selected aspects of civil procedure, and the American Constitution. Instructor: Fish. One course.

128. Multiculturalism and Political Theory (C-N). CCI, EI, SS Theoretical and normative issues arising in the multicultural context of modern societies: nationalism, ethnic revival, and identity politics, as they contest understandings and practices of democracy, cultural pluralism, the nature of cultural membership, individual and group rights, minority representation, citizenship, and questions concerning justice and the good. Instructor: Coles. One course.

130. Women and the Political Process (C-N). R, SS One course. C-L: see Women's Studies

131. Introduction to American Political Thought (A, C-N). EI, SS Basic elements of the American political tradition examined through a critical analysis of the ethical and political issues and controversies that developed from its historical English roots to the present day. Instructor: Grant or Spragens. One course.

132. Radical Political Economy (C). CCI, EI, SS Critical approaches to contemporary political economy and alternative political economic practices. Power and inequality, relations between state, economy and grassroots democratic social movements. Focus on contesting principles such as equality, democracy, freedom, justice efficiency in relation to diverse economic practices. A variety of scales examined from municipal to transnational. Historical and contemporary texts. Instructor: Coles. One course.

133. American Power and the Global Economy (D). R, SS Examination of the character and role of America in helping to shape and manage the global economy, and the effects of both on America's foreign policy and national politics and economy. Issues include America and the global trade regime, international money and finance, the multinational enterprise, and the developing countries. Instructor: Grieco. One course.

134. Classics of Western Civilization: The German Tradition, 1750-1930 (B). ALP, CCI, CZ One course. C-L: see German 182; also C-L: English 148, History 179A, Literature 163B

135. Political Development of Western Europe (B). CCI, SS The development of the modern political systems of Britain, France, Germany, and other European countries; the spread of capitalism, the emergence of mass democracy and the rise of the welfare state. Contemporary developments examined in historical and theoretical perspective. Instructor: Kitschelt or Lange. One course. C-L: International Comparative Studies

136. Comparative Government and Politics: Western Europe (B). CCI, SS, W Modern political institutions and processes of European democracies: political parties, interest groups and parliaments; regional, religious, and class divisions; political participation and mobilization; relationships of state, society and economy; political, social and economic
change in postwar Europe. Instructor: Kitschelt or Lange. One course. C-L: International Comparative Studies

137. Campaigns and Elections (A). SS The campaign process, voting and elections in the United States, with emphasis on the varying role of media in campaigns. The nomination and election process; focus on the critical evaluation of various empirical models of voting behavior in presidential and congressional elections and the impact of election outcomes on the content and direction of public policy in various historical eras in American politics. Instructor: Aldrich or Kornberg. One course.

138. Quantitative Political Analysis I (C-E). QS, R Basic applications of statistical methods to the analysis of political phenomena. Emphasis on research design, graphical display, probability, testing of hypotheses, statistical inference, and the use of computers. Instructor: Staff. One course.

139. Conflict, Collusion, and Cooperation (C-E). SS Applications of modern decision theory to the study of political science. Topics include: individual decision theory and rational choice; game theory and human interaction; and social choice theory and the mechanisms by which individual choices are aggregated into collective choices. Political institutions such as voting rules, legislatures, parties, and hierarchy, alternative voting methods and political institutions, and how societies solve some practical distributive problems. Although course has no mathematical prerequisites, students should be willing to consider abstract models and follow logically rigorous arguments. Instructor: Niou. One course. C-L: Politics, Philosophy, and Economics

139S. Conflict, Collusion, and Cooperation (C-E). SS Same as Political Science 139 except in seminar format. Instructor: Niou. One course.


141D. Introduction to Racial and Ethnic Minorities in American Politics (A). CCI, SS The politics of four of the United States principal racial minority groups -- blacks, Latinos, Asians, and American Indians. Instruction is provided in two lectures and one small discussion meeting each week. Instructor: McClain. One course. C-L: African and African American Studies 149D

142. War and Peace (D). CCI, R, SS Evaluation of the social science literature on the causes of war. Focus on theoretical and empirical works, using a variety of research strategies. Application of prominent theories of war to the analysis of several case studies. Course objectives: identification of strengths and weaknesses of the literature concerning the causes of war: definition of specific questions and issues for future research; and application of knowledge of causes of war to historical case studies. Required research paper involving case study. Instructor: Gelpi. One course.

142S. War and Peace (D). CCI, R, SS Same as Political Science 142 except in seminar format. Instructor: Gelpi. One course.

143. Gender and Political Theory (C-N). CCI, SS One course. C-L: see Women's Studies 165

144. Force and Statecraft (D). EI, SS The theory and practice of the use of force as an instrument of state policy in different historical periods and with different nations. Examines the ethical arguments and beliefs which have been fashioned in statecraft to justify or prohibit the use of force in international politics. Prerequisite: Political Science 93 or equivalent. Instructor: Feaver. One course.

146. Development of Congress as an Institution (A). CCI, SS Changes in election processes, rules, and membership in six periods: federalist, antebellum, reconstruction, progressive era, civil rights era, post-Watergate. "Representativeness" of the institution, including focus on the history of racial and gender balance, and its meaning for policy and the views of members. Instructor: Staff. One course.

147D. Environmental Politics and Policies in the Developing World (B). CCI, EI, SS, STS Problems of sustainable development and early industrialization in the Third World; special focus on land use, agriculture, deforestation, desertification, wildlife, water, and population growth, Third World cities, early industrialization, and aid for development projects. Instruction is provided in two lectures and one small discussion meeting each week. Instructor: McKean or Miranda. One course. C-L: Public Policy Studies 147D, International Comparative Studies, Ethics

149D. Globalization and Public Policy (D). R, SS One course. C-L: see Public Policy Studies 185D; also C-L: International Comparative Studies

150D. Ancient Political Theory (C). EI, SS, W Same as Political Science 150 except instruction is provided in two lectures and small discussion section each week. Instructor: Grant. One course. C-L: Classical Studies 157D

151. Dictators and Democrats in Modern Latin America (B). CCI, EI, R, SS The dynamics of political change in Latin America with emphasis on broad historical patterns of political conflict, institutional change, and socioeconomic development. Topics include: military rule, democratic transitions, civil-military relations, transitional justice, regional integration, and United State-Latin American relations. Instructor: Remmer. One course. C-L: International Comparative Studies 130F


151E. Elections and Social Protest in Latin America. CCI, CZ, SS Introduction to the literature on electoral behavior and social movements and overview of elections and protest-who votes, who protests, and why they do it. Analysis of the following six countries: Bolivia, Mexico, Chile, Argentina, Venezuela, and Guatemala. Open to sophomores and juniors with a basic background in Latin American history. Instructor: Trejo. One course. C-L: International Comparative Studies 131E, Latin American Studies 151E


154. Politics of East Asia (B). CCI, SS An introduction to the political and economic systems of contemporary East Asia, with emphasis on China, Taiwan, Korea, Japan, Hong Kong, and Singapore. The ideologies and strategies pursued by these countries, contemporary economics, political, and strategic issues in the region. Instructor: Niou. One course. C-L: International Comparative Studies 121G


156. Conflict, Conflict Resolution, and Film (B). ALP, CCI, SS One course. C-L: see Film/Video/Digital 108; also C-L: English 186A, Literature 120C, Public Policy Studies 172, Visual Studies 117H
156A. Contemporary Documentary Film: Filmmakers and the Full Frame Documentary Film Festival. ALP, CCI, STS One course. C-L: see Film/Video/Digital 103; also C-L: Documentary Studies 129, Public Policy Studies 171

156B. Film and Politics. ALP, EI, R, SS Selected film genres and films as they illuminate political behavior. Ethical issues and controversies raised by the making and contents of films. Inducts students into the ways research is conducted in the study of films and the generation and presentation of knowledge in the discipline. Instructor: Paletz. One course. C-L: Film/Video/Digital 110


157. Foreign Policy of the United States (D). CCI, SS Internal and external sources of American Foreign Policy, including the role of ethnicity, nationality, and distinct world views of Americans and other peoples. The formulation and conduct of American foreign policy in different historical periods with an examination of foreign policy in the post-Cold War era and prospects for alternative futures. Instructor: Eldridge or Feaver. One course.


158D. Non-State Actors in World Politics (D). R, SS, STS, W Same as Political Science 158 except instruction is provided in two lectures and one small discussion meeting each week. Instructor: Buthe. One course. C-L: Public Policy Studies 181D, Markets and Management Studies

159. Ambition and Politics (C-N). EI, SS, W A theoretical examination of the role of ambition in politics, including works by or on Homer, Plato, Plutarch, Machiavelli, Shakespeare, Tocqueville, Nietzsche, and Hitler. Instructor: Gillespie. One course.

161. Business, Politics, and Economic Growth (B). CCI, SS The historical origins of political institutions affecting economic growth across advanced capitalist countries in Europe, America, and East Asia: capital markets, labor relations, research and development policy, social policy; effect of globalization and technological change on these nationally diverse arrangements; global convergence of corporate governance, national divergence of labor relations, research and development policies, and social policies. Instructor: Kitschelt. One course. C-L: Markets and Management Studies

162. Human Rights in Theory and Practice (C-N). CCI, CZ, EI, SS The nature and value of human rights; examining some major debates over their status and meaning and assessing the role which the idea of human rights has played in changing lives, practices, and institutions. Questions considered include: whether commitments to human rights depend on a belief in moral truth; whether the idea of universal human rights makes sense in a culturally diverse world; and what forms of social action are most likely to achieve respect for human rights. Instructor: Kiss. One course. C-L: Public Policy Studies 162, Philosophy 162, Documentary Studies, Global Health, Ethics

163. Institutions and Reforms in China (B). CCI, SS Institutions set the framework of rules and incentives that affect how people utilize resources in political and economic decision-making. Course studies the creation and evolution of Chinese and political and economic institutions from both the historical and theoretical perspectives. Topics include taxation schemes, granary systems, political participation, voting methods, political control mechanisms, community compact and local governance, and money raising methods. Course previously taught as POLSCI 261S. Instructor: Niou. One course.

165. Politics, Philosophy, and Economics Capstone (A, C-N). R, SS Capstone course open only to students in the Politics, Philosophy, and Economics program. Integrates and synthesizes the analytical framework and factual studies provided in other PPE courses. Consent of instructor required. Instructor: Staff. One course. C-L: Economics 104, Philosophy 165, Politics, Philosophy, and Economics

166. Congress and the President (A). SS, W Critical interpretations of public policies and institutional practices to better understand the United States system of divided government. Special attention to understanding the consequences of cooperative and adversarial goals of the executive branch and the Congress. Features of this institutional balance of power in policy-making; institutional and political origins of laws and regulations. Instructor: Munger. One course.

167. International Law and International Institutions (D). CCI, R, SS The relationship between international politics and international law; how international institutions operate and affect social practices, and how legalization of institutions changes the manner of interpretation of legal texts. The nature of legal and political discourse over issues subject to international law such as human rights; issues of compliance with rules, the connections between international relations and domestic law, and the overall effects of international law and institutions on world politics; cross-national differences in attitudes toward issues such as environmental regulation, trade liberalization, and military intervention on behalf of human rights. Prerequisite: Political Science 93 or equivalent. Instructor: Staff. One course. C-L: Markets and Management Studies

168. Analysis of Political Decision Making (C-E). SS Surveys of some of the most prominent problems, methods, ideas, and findings that have emerged in recent theoretical studies of politics. Intellectual puzzles, speculative models and normative and explanatory applications, individual decision theory, game theory, and social choice theory. Not open to students who have taken Political Science 139. Instructor: Niou. One course. C-L: Politics, Philosophy, and Economics

169. Chinese Politics (B). CCI, SS The Communist revolution, the structure of the political system and political decision making in the People's Republic of China in different eras of its evolution. The relations between state and society, and the political implications and consequences of reforms undertaken in the post-Mao era. Instructor: Shi. One course. C-L: International Comparative Studies

170S. Domestic Politics and Regional Rivalry in East Asia (B). CCI, R, SS The complicated regional relationships between Taiwan, China, North and South Korea. Their politics and economic growth; their relationship with Japan and the United States. Instructor: Niou. One course.

171. From Apartheid to Democracy in South Africa (B). CCI, EI, SS The South African political system in the twentieth century with particular attention to the transition from apartheid and white minority rule to nonracial democracy. Instructor: Johns. One course. C-L: African and African American Studies 171, International Comparative Studies 110B


conflict is likely to change in the next few decades. The impact of a freer trade environment and the increasing integration of the world economy on ethnic conflict. The effectiveness of international institutions like the United Nations and NATO in preventing the reoccurrence of tragedies like Rwanda. Instructor: Staff. One course. C-L: International Comparative Studies 103A

174. Introduction to African Studies (B) (DS3 or DS4). ALP, CCI, CZ One course. C-L: see African and African American Studies 107; also C-L: Cultural Anthropology 136, English 180, History 115C

175B. Distributive Justice (C-N). EI, SS Exploration of what constitutes a fair or just distribution of goods in society (e.g. whatever results from a free market; to each according to her needs: whatever distribution is to the advantage of the least advantaged.). Topics include the ownership of private property, egalitarianism, welfare state liberalism, socialism. Readings in political theory with emphasis upon contemporary theories. Instructor: Charney or Spragens. One course. C-L: Public Policy Studies 175, Ethics

176. Chinese Politics and Film (B). CCI, SS The use of films produced in different periods of Chinese history over the past fifty years that demonstrate changes and continuity of culture and politics in the People's Republic of China. Instructor: Shi. One course.

177A. American Constitutional Development I (A). SS Development of the United States Constitution through Supreme Court decisions: the foundations of national power, including the separation of powers, the nature of the federal union and the relationship of the Constitution to political and economic life since 1790. Instructor: Fish. One course. C-L: History 177A

177B. Modern American Constitutional Development II (A). SS Development of the United States Constitution through Supreme Court decisions: national power and federalism in the context of modern political and economic life, New Deal to the present. Instructor: Fish. One course. C-L: History 177B

178. Liberty, Equality, and the American Constitution (A). EI, SS Legal, political and ethical dimensions of authority, liberty and equality through United States Supreme Court opinions. Not open to students who have taken Public Policy 195, Constitutional Rights. Instructor: Chemerinsky or Fish. One course.

179. US Comparative State Politics (A). CCI, SS Intensive comparative examination of government, political cultures, and politics in the American States, including institutions (governors, legislatures, courts), history of federalism, policies, practices, and diverse cultural factors such as class, race, ethnicity, gender, religion, urban-rural-suburban residencies that affect state politics. Instructor: Haynie. One course.

180. Comparative Democratic Development (B). CCI, SS Comparative study of democratic political institutions with emphasis on selected Asian, African, and Latin American nations. Instructor: Remmer. One course. C-L: International Comparative Studies 103B


183. Ecological Crisis and Political Theory (C-N). CCI, EI, SS Ethical, political, economic, aesthetic, social, and technological approaches to contemporary ecological crisis. Focus on western modernity; attention to historical roots. Instructor: Curtis. One course.

186. Civilians in Path of War (D). EI, R, SS Major social science theories and ethical frameworks for understanding mass violence against civilians; prominent cases of such violence. Normative and legal restraints on killing of civilians; societal cleavages, goals of political leaders, guerilla warfare, effect of organizational or bureaucratic cultures, and regime type. Instructor: Downes. One course. C-L: Ethics
187. **Politics and the Libido (A).** CCI, EI, SS  The construction of gender and sexuality across nations and cultural groups. Effects of the libido on elite and mass political activities in the United States. Ethical and political issues and policy controversies at various times when the government has regulated or sought to regulate sex-inspired behavior. Instructor: Paletz. One course. C-L: Study of Sexualities, Women's Studies

188. **Comparative Health Care Systems (B).** CCI, EI, SS  One course. C-L: see Public Policy Studies 178; also C-L: Sociology 171, Health Policy, Ethics, Global Health

189. **Internship (A).** Open to students engaging in practical or governmental work experience during the summer or a regular semester. A faculty member in the department will supervise a program of study related to the work experience, including a substantive paper on a politics-related topic, containing significant analysis and interpretation. Consent of director of undergraduate studies required. Instructor: Staff. One course.

190. **Internship (A).** See Political Science 189. Consent of director of undergraduate studies required. Instructor: Staff. One course.

191. **Sophomore/Junior Independent Study (A, B, C, D).** Individual non-research directed study in a field of special interest, under the supervision of a faculty member, on a topic previously approved by the supervising faculty member and the Director of Undergraduate Studies, resulting in an academic product. Instructor consent required. Instructor: Staff. One course.

192. **Sophomore/Junior Research Independent Study (A,B,C,D).** Individual research under the supervision of a faculty member, the central goal of which is a substantive research paper or report containing significant analysis and interpretation of a previously approved topic. Consent of director of undergraduate studies and supervising instructor required. Instructor: Staff. One course.

193. **Senior Independent Study (A, B, C, D) Independent Study.** Individual non-research directed study in a field of special interest, under the supervision of a faculty member, on a topic previously approved by the supervising faculty member and the Director of Undergraduate Studies, resulting in an academic product. Department consent required. Instructor: Staff. One course.

194. **Senior Research Independent Study (A,B,C,D).** Individual research under the supervision of a faculty member, the central goal of which is a substantive research paper or report containing significant analysis and interpretation of a previously approved topic. Consent of director of undergraduate studies and supervising instructor required. Instructor: Staff. One course.

195. **Marx, Nietzsche, Freud (C-N).** CCI, CZ, SS  One course. C-L: see German 186; also C-L: Philosophy 186, Literature 186A

195D. **Marx, Nietzsche, Freud.** CCI, CZ, EI, SS  One course. C-L: see German 186D; also C-L: Philosophy 186D, Literature 186AD

196. **Taiwan: Domestic Politics and External Threats (B).** CCI, SS  The causes of and possible solution to the contest between Taiwan and China. Topics include: evolving public opinion on independence versus unification, United States security commitments to Taiwan, China's growing military threats, and trade relations between Taiwan and mainland China. Instructor: Niou. One course.

197. **Advanced Research Independent Study (A,B,C,D).** Discovery, critical evaluation and/or application of knowledge and understanding within political science resulting in a substantial research paper containing advanced analysis and interpretation. Prior consent of director of undergraduate studies and supervising instructor as well as acceptance of a detailed research proposal required. Subject to prerequisites at discretion of supervising instructor. Open to juniors and seniors. Instructor: Staff. One course.
199. Special Topics in Government and Politics. SS Topics vary from semester to semester. A. American Government and Politics; B. Comparative Government and Politics; C. Political Theory; D. International Relations. Instructor: Staff. One course.

199S. Special Topics in Government and Politics. SS Same as in Political Science 199 except in seminar format. Instructor: Staff. One course.

FOR SENIORS ONLY


200S. Senior Seminars. SS Special topics courses; open also, if places are available, to qualified juniors who have earned a 3.0 average and obtain the consent of the instructor. A. American Government and Politics; B. Comparative Government and Politics; C. Political Theory; D. International Relations. Instructor: Staff. One course.

201S. Problems in International Security (D). SS The impact of democratic political structures on state foreign policy behavior. Emphasis on the influence of democratic norms and principles on the use of force. Theoretical debates on the influence of democracy and the use of force, with attention to the methodological and statistical difficulties of both measuring democracy and estimating its impact on international politics. Prerequisite: a course in international relations or American foreign policy. Instructor: Staff. One course.

202S. Race in Comparative Perspective (A). CCI, SS Comparative study of the way race is socially constructed in the United States, several European, Latin American, and other countries. The real effects of this social construction on the social and political lives of communities of color in these countries. Instructor: McClain. One course.

203S. Politics and Media in the United States (A). R, SS, STS The impact of the media of communication and new technologies on American political behavior, government, politics, issues and controversies. Development of critical interpretive skills and arguments as students write research papers assessing the media's political influence and effects. Instructor: Paletz. One course. C-L: Policy Journalism and Media, Canadian Studies, Film/Video/Digital

204. Interfield Capstone Course for Majors. EI, R, SS Senior capstone considering major issue(s) in political science from multiple points of view, using quantitative/qualitative evidence. Areas including normative and deductive theory, empirical evidence, knowledge of real world comparative institutions, and relations among nations to illuminate and explain phenomenon. Focus on ethical concerns of design and performance of political institutions: What makes systems better than others and how would we know? Students will synthesize knowledge and produce research paper that demonstrates active and deep engagement with multiple perspectives. Instructor: Munger. One course.

206S. Political Participation: Comparative Perspectives (B). CCI, SS The study of political participation through development of an understanding of relevant research methods. The effects of political culture on political participation. Popular participation and mobilization systems in liberal democracies and developing countries. Instructor: Shi. One course. C-L: International Comparative Studies 201AS

207S. Religion and Comparative Politics (B). CCI, SS The relationship between states, societies, and religious institutions in contemporary world politics. Theories that emphasize the explanatory role of religious ideas, religious market structures, and different socio-economic and political conditions. Major focus on Christianity (Catholicism, Protestantism and Evangelicalism) mostly in Latin America, Western and Central Europe, and the United States. Attention also to Islam and Hinduism in Africa, the Middle East, and India. Instructor: Trejo. One course.

208S. Theories of International Conflict (D). R, SS Social science literature review of the causes of international conflict emphasizing the theories concerning the causes of war.
Objectives of course: to identify the strengths and weaknesses of the literature concerning the causes of war; to define specific questions and issues which must be addressed by future research; and to develop concrete research strategies for investigating these questions. Instructor: Gelpi. One course.

210S. Comparative Ethnic Politics. CCI, CZ, SS Why and when ethnicity becomes a salient cleavage for political mobilization and the conditions under which ethnic collective action may take violent or non-violent forms. Approaches to the study of social identities; types of ethnic collective action, including non-violent (electoral participation and social protest) and violent ones (riots, rebellions, civil war, and terrorism); and main normative debates in favor and against ethno-cultural group rights. Comparisons include Latin America, Africa, Europe, and South Asia. Instructor: Trejo. One course.

212S. Politics and Markets (A, C-E, D). R, SS Seminar on classics of political economy, exploring the relationship between economic markets and politics as treated in the works of Adam Smith, Marx, Polanyi, Schumpeter, Lindblom, and Hirsch, as well as contemporary works on globalization and its effects on domestic politics. Open only to seniors and graduate students. Instructor: Staff. One course.

213S. Theories of International Political Economy (D). SS Issues include politics of trade, finance, economic development, conflict and cooperation in the world economy, and causes and consequences of economic globalization. Both advanced industrialized and developing countries. Open to qualified seniors with consent of instructor. Instructor: Buthe. One course.

214S. Economy, Society, and Morality in Eighteenth-Century Thought (C-N). R, SS Explorations of eighteenth-century topics with a modern counterpart, chiefly (a) self-interest, liberal society, and economic incentive; and (b) the passions, sociality, civic virtue, common moral sensibilities, and the formation of taste and opinion. Original texts: for example, Bacon, Newton, Shaftesbury, Mandeville, Hutcheson, Hume, Smith, Hogarth, Burke, Cato’s Letters, Federalist Papers, Jane Austen. Stress on integrating economic and political science perspectives. Open only to seniors majoring in either political science or economics. Not open to students who have had Economics 146. Pre-requisites: Economics 105D; and Economics 110D. Instructors: De Marchi and Grant. One course. C-L: Economics 214S

215S. Democratic Institutions (B). CCI, SS How constitution makers choose basic rules of the democratic game, such as the relations between legislatures and executives, the role of parties, electoral system, prerogatives of constitutional courts, and other important elements of democratic institutional design; the impact of such arrangements on various groups within the state, and the overall performance of democracies; durability of arrangements, the structuring of power relations among parties, and whether democratic institutions affect economic and social policy outcomes. Instructor: Kitschelt. One course.

217. Comparative and Historical Methods (B). R, SS One course. C-L: see Sociology 214; also C-L: International Comparative Studies

218S. Political Thought in the United States (A, C-N). EI, SS American political thought and practice through the Civil War period. A critical analysis of the writing of our founders and their European antecedents. Focus on the philosophical and political debates and the underlying ethical and political issues found in the debates over the Constitution, slavery, and the Union. Instructor: Gillespie or Grant. One course.

219S. American Grand Strategy. CZ, SS Study of policy that nations adopt to marshal their political, economic, military, technological, and diplomatic resources to achieve their national goals in the international environment they face, drawing on political science, history, public policy, law and political economy and other disciplines to achieve these ends. Course examines the history, current reality, and future prospects of American grand strategy. Consent of instructor required. Instructor: Feaver. One course. C-L: History 220S, Public Policy Studies 219S
220S. Problems in International Politics (D). CCI, R, SS The development and critical analysis of various models in political science and economics that focus on the relationship between international economics and international security. Various models of the impact of political-military dynamics on international economic relationships, and the impact of international economics on the likelihood of war and peace among nations. Attention to the interplay between economics and security in a key region of the world--East Asia. Prerequisite: one course in international relations, foreign policy, or diplomatic history. Instructor: Staff. One course.

221S. Theories of International Relations (D). R, SS Systematic evaluation of major theories of international relations, including realism, liberalism, and constructivism. Identification of key criteria for assessment of theories, and discussion of new research frontiers in the field, including analysis of domestic politics and foreign policy. Instructor: Downes and Grieco. One course.

222. Introduction to Statistical Analysis (C-E). QS Basic applications of statistical theory to political questions: research design, hypothesis tests, computer data analysis. Consent of instructor required for undergraduates. Instructor: De Marchi. One course.

223. Ancient Political Philosophy (C-N). CCI, EI, SS Intensive analysis of the political philosophy of Plato, Aristotle, and other ancient theorists. Research paper required. Instructor: Gillespie or Grant. One course. C-L: Classical Studies 203

224S. Modern Political Theory (C-N). CCI, EI, SS A historical survey and philosophical analysis of political theory from the beginning of the seventeenth to the middle of the nineteenth century. The rise of liberalism, the Age of Enlightenment, the romantic and conservative reaction, idealism, and utilitarianism. Instructor: Grant or Spragens. One course.

226S. Nietzsche's Political Philosophy (C-N). CZ, EI, SS Study of the thinker who has, in different incarnations, been characterized as the prophet of nihilism, the destroyer of values, the father of fascism, and the spiritual source of postmodernism. An examination of his philosophy as a whole in order to come to terms with its significance for his thinking about politics. Instructor: Gillespie. One course. C-L: German 276S, Philosophy 237S

229S. Contemporary Theory of Liberal Democracy (C-N). EI, SS Reading and discussion of some of the most important theoretical conceptions of democratic ideals and purposes since 1970. Topics include social justice, individual rights and community, deliberative democracy, and the normative implications of moral and religious pluralism. Instructor: Spragens. One course.

230S. Introduction to Positive Political Theory (C-E). R, SS Introduction to formal models in political science and a field of research that is at various times called political economy, positive political theory, formal theory, and public choice. Focus on three basic models that form the foundation of the field: individual choice, game theory, and social choice. Instructor: Aldrich or Niou. One course. C-L: Politics, Philosophy, and Economics


236S. Hegel's Political Philosophy (C-N). EI, R, SS Within context of Hegel's total philosophy, an examination of his understanding of phenomenology and the phenomenological basis of political institutions and his understanding of Greek and Christian political life. Selections from Phenomenology, Philosophy of History, and Philosophy of Right. Research paper required. Instructor: Gillespie. One course. C-L: Philosophy 236S, German 275S

238S. Courts, Wars, Legacies of Wars (A). R, SS The impact of international wars, international policing, and domestic wars relating to national security on the United States courts of the Fourth Circuit (Maryland, Virginia, West Virginia, North and South Carolina),
and the role played by these courts in the Mid-Atlantic South from the American Founding into the Cold War Era. The American Constitution, laws, and treaties of the United States, and principles of admiralty and international law which figure in assigned published and unpublished judicial decisions of the region’s United States district and old circuit courts and of the post-1891 Fourth Circuit Court of Appeals. Research paper required. Also taught as Law 548S. Instructor: Fish. One course. C-L: History 255AS

239S. American Mass Political Behavior. SS Several facets of the political behavior of mass actors in American politics. Likely topics include the factors that cause the type and amount of individual participation, mobilization by elites, ideology and information, partisanship, partisan stability and change, socialization, macro-level change, negative advertising, economic voting, issue evolution, and the effects of institutional changes (especially election rules) on voter turnout. Consent of Instructor required. Instructor: Aldrich. One course.

240. The Politics of European Integration (D). CCI, R, SS Politics and institutions of the European Union (EU) and the historical process that led to it. Theoretical perspectives discussed include classics of integration theory (neofunctionalism, intergovernmentalism) but also theories of state formation, delegation, and distributional politics (EU comparatively as instance of common political phenomena). Social constructivist, gender, and Marxist theories also considered. Research papers on process of European integration or contemporary EU politics. Consent of instructor required. Instructor: Buthe. One course.

243S. Political Applications of Game Theory (C-E). R, SS Emphasis on acquiring good working knowledge of standard game theory techniques and models used in political science literature, hence emphasis on examples and problem sets. No knowledge of game theory presupposed, but good basic knowledge of calculus and elementary probability theory. Includes examples from voting, congressional committees, ethnicity, IPE and IR, and CPE. Instructor: De Marchi, Niou or Soskice. One course.

244S. Formal Modeling In Political Science (C-E). QS Emphasis on use of formal analysis in various subfields in political science. Students expected to (i) derive/prove the results from the readings, (ii) analyze the contribution of readings and (iii) find ways to improve the line of research. Students expected to have taken a course in game theory, Political Science 243S or equivalent. Instructor: Leventoglu. One course.

247. Politics and Philosophy of Self and Other (C-N). EI, SS Epistemological, ontological, ethical, and political dimensions of relations between self and other. Theorists may include Husserl, Merleau-Ponty, Levinas, Derrida, Adorno, Gadamer, Sartre, Foucault, and Bakhtin. Instructor: Coles. One course.

249. The Politics of Health Care (A). EI, SS One course. C-L: see Public Policy Studies 253; also C-L: Health Policy

252S. The Nation-State and the International System (D). CCI, R, SS The interaction between state structures and the international system, with a focus on the rise and development of European nations. Topics include war and its effects on national political institutions, nationalism, and state formation; war and national revolution; imperialism and decolonization; and economic dependency and national autonomy. Research paper required. Prerequisite: Political Science 93. Instructor: Grieco. One course.

255S. State and Society in China (B). CCI, SS An examination of selected aspects of Chinese politics. Prerequisite: Political Science 117 or equivalent. Instructor: Shi. One course.

256S. Theory and Practice of National Security (D). R, SS, STS, W In-depth look at the theoretical and empirical literature explaining how states seek to guarantee their national security. Topics include: grand strategy, nuclear deterrence and warfighting, coercive diplomacy, military intervention, decisions for war, and civil-military relations. Special attention paid to U.S. national security during and after the Cold War. Consent of instructor required. Instructor: Feaver. One course.
257S. Politics, Society and Development in China (B). CCI, SS Issues affecting development in China including financial markets, labor, capital, democracy, and cultural patterns. Instructor: Shi. One course.

259S. American Civil-Military Relations (A, D). R, SS Theory and practice of relations between the military, society, and the state in the US. Special attention paid to how civil-military relations play out in the use of force. Other topics include: public opinion, casualty sensitivity, and the role of the military in partisan politics. Consent of instructor required. Instructor: Feaver. One course.

260S. Social Theory and Social Practice (C-N). Comparison and critique of answers given by philosophers and social theorists to the questions: what can we know about society and what is the practical utility of that knowledge? Theorists and topics include Aristotle, early modernity's "new science of politics," Marxist praxis, Weber's "wertefrei" science, Mill's logic of the "moral sciences," Comte's sociology, Mannheim's sociology of knowledge, behaviorism and its critics, the vocation of social science. Instructor: Spragens. One course.

264. Marine Policy (A). SS, STS One course. C-L: see Environment 276; also C-L: Public Policy Studies 297, Marine Sciences

266S. Topics in Early Modern Political Thought from Machiavelli to Mills (C-N). CCI, SS Topics vary from semester to semester. Instructor: Staff. One course. C-L: Philosophy 266S

267S. Persistence and Change in Political Institutions (B, D). CCI, R, SS Persistence and Change in Political Institutions (B,D). International and domestic institutions in world politics; focus on causes and mechanisms of institutional persistence and change in comparative perspective. Examines, for instance, evolution of political-economic institutions under the impact of globalization. Instructor: Buthe. One course.


271S. International Environmental Regimes (B, D). EI, SS, STS Law, politics, and institutional design of international regimes created among nations to cope with environmental problems. Includes study of particular conventions and treaties (for example, acid rain, ozone, carbon reduction, biodiversity, Antarctica, regional seas, ocean dumping), and the environmental implications of international trade rules and regimes (for example, GATT). Instructor: McKean. One course. C-L: Public Policy Studies 258S, International Comparative Studies 201CS

272S. International Relations Theory and Chinese Foreign Policy (B, D). CCI, SS Examines range of theories and conceptual approaches to the study of international relations to see how these may or may not work in explaining Chinese foreign policy and whether or not patterns of Chinese foreign policy require evaluation of theories. Instructor: Shi. One course. C-L: International Comparative Studies

273S. Heidegger (C-N). CZ, EI, SS An examination of the philosophy of Martin Heidegger from its phenomenological beginnings to its postmodernist conclusions with particular attention to its meaning for questions of identity, history, nihilism, technology, and politics. Instructor: Gillespie. One course. C-L: Philosophy 273S

275. The American Party System (A). SS Role of political parties and the party system in the origin and perpetuation of democratic politics. Critical evaluation of different theories and models of the origins, structures, and activities of American political parties and their contribution to maintenance of a democratic society. Development of original research or critical evaluation of research findings using an extensive array of evidence, including statistical estimation and formal modeling. Instructor: Aldrich. One course.

277. Comparative Party Politics (B). CCI, R, SS The concepts, models, and theories employed in the study of political parties in various competitive democracies. Focus on advanced industrial democracies where there is a rich empirically oriented literature on this topic. The resurgence of democracy in developing areas and the role of party competition and democracies in these regions of the world. Instructor: Lange. One course. C-L: International Comparative Studies 201E, Canadian Studies


286S. Theory and Practice of International Security (D). R, SS Analysis and criticism of the recent theoretical, empirical, statistical, and case study literature on international security. This course highlights and examines potentially promising areas of current and future research. No prerequisite, but Political Science 93 recommended. Instructor: Staff. One course.

289S. Contemporary Ethical Theories (C-N). CZ, EI, SS One course. C-L: see Philosophy 203S; also C-L: Women's Studies


299. Advanced Topics in Government and Politics. SS Topics vary from semester to semester. A. American Government and Politics B. Comparative Government and Politics C. Political Theory D. International Relations Instructor: Staff. One course.

299S. Advanced Topics in Government and Politics. Same as Political Science 299 except in seminar format. Instructor: Staff. One course.

POLITICAL INTERNSHIPS

The department administers an internship program, primarily in Washington, D.C., for political science majors and interested nonmajors. Students participate by qualifying for a position obtained by the department or by acquiring their own relevant employment, with or without compensation. Course credit can be obtained by enrolling in Political Science 189 or 190 and writing a substantive paper containing significant analysis and interpretation on a politics-related topic. Potential applicants should contact the internship director at any time, but preferably in the fall semester.

POLITICAL SCIENCE COURSES BY FIELDS

Political science courses for undergraduates are offered in four fields. The courses in each of the four fields are listed below; in the course descriptions above, the field in which each course falls is indicated by the appropriate symbol (A, B, C-N/C-E, or D).


* If subject matter is appropriate to the field


THE MAJOR

Major Requirements. Ten (10) courses in political science, at least eight of which must be at or above the 100 level. Among the ten courses taken two (2) must be foundation courses; three (3) must be subfield distribution courses; three (3) must be concentration courses (including a 200-level course); and two (2) may be electives.

The two (2) required foundation courses are satisfied by:
Political Science 102 Introduction to Political Inquiry

AND

The three (3) required subfield courses are satisfied by one (1) course in each of three (3) sub-fields of political science (other than that in normative theory (C-N) satisfied by one of the introduction to political thought courses): American government and politics (A), comparative government and politics (B), international relations, law and politics (D).

An election must be made respecting courses bearing more than one field designation. The courses that satisfy the sub-fields are found in the section above, “Political Science Courses by Field”. This list does not include courses which may be offered by visiting faculty, courses taken abroad, courses transferred from other universities, or special topics courses in which the content varies from year to year. The following types of courses are not included in these lists:

Political Science 49S First-year seminars
Political Science 189 –190 Internship credit
Political Science 191-194 Independent Study
Political Science 200S Senior Seminars
Majors taking such a course without a field designation should consult with the undergraduate program coordinator to determine in which field it will be assigned.

The concentration requirement is satisfied by three (3) courses in one (1) of the four subfields denoted by A, B, C-N, D.

A thematic or inter-field depth-concentration may be created with the approval of a faculty supervisor and the director of undergraduate studies.

The 200-level course requirement is satisfied by: one (1) senior seminar (POLSCI 200S) or one (1) course at the POLSCI 201-299 level in the depth-concentration subfield, or by the two-course Senior Honors Program (POLSCI 200H.02, 200H.03) or by (POLSCI 204, Interfield Capstone course).

Two (2) elective political science courses complete the ten (10) course major. Students admitted to the Senior Honors Program will only have one (1) elective due to the prerequisite POLSCI 138 Quantitative Political Analysis for students undertaking a non-political theory honors project.

New majors who wish to create an inter-field concentration made up of courses listed under different areas of concentration/fields may do so in consultation with the director of undergraduate studies and their faculty advisor.

Of the ten required political science courses, at least eight must be Duke courses taught by a member of the Duke instructional staff. However, this requirement may be reduced to seven courses if the student: (1) is engaged in political science courses in a year-long study abroad through either a Duke-administered or Duke-approved program, or (2) transferred to Duke after completing two undergraduate years at another institution.

In satisfying the requirements of the major, students in the Robertson Scholars Program may count, exclusive of transfer courses, as many as two UNC-CH courses offered at a level below the 200 level at Duke.

Advanced Placement Credit. Advanced placement credits in political science (score of 4 or 5). These course credits are designated as Political Science 90A (American Government and Politics) and Political Science 90B (Comparative Government and Politics). Such credits are applied toward the thirty-four credits needed for graduation and enable students to enroll in any 90-level introductory course(s) and permit them to enroll in advanced American and/or Comparative Government course(s). Advanced placement course credits (90A, 90B) DO NOT satisfy course requirements for the political science major.

Suggested Work in Related Disciplines. Selected courses in such disciplines as anthropology, economics, history, philosophy, psychology, public policy, religion, sociology, and statistics are desirable.

Interdepartmental Major. For information on declaring an interdepartmental major, consult the chapter "Degree Programs" in this bulletin.

Departmental Graduation with Distinction

The department offers students majoring in political science a senior honors program, by successful completion of which a participant achieves Graduation with Distinction in political science. The central requirement of the program is an honors thesis which the student prepares under faculty supervision. The honors program consists of two courses (Political Science 200H.02 and 200H.03). Seniors entering their seventh semester who have attained at least a 3.3 grade point average overall and a 3.5 average in political science courses are eligible for admission to Political Science 200H.02, provided they have completed or will complete by the end of that semester POLSCI 138 Quantitative Political Analysis I or an equivalent course including Statistics 101 or above if they intend to select a research subject in the American (A), comparative (B), or international relations (D) subfields. Students must submit a thesis proposal by the end of the spring semester of their junior year. Admission to the program will be determined by the satisfaction of GPA requirements, course prerequisite (POLSCI 138) and by faculty approval of the thesis
proposal. Upon request, the honors program coordinator may recommend admission to the honors seminar of a student who lacks one or both requisite grade point averages. The honors program coordinator must approve any recommended student’s admission.

Political Science 200H.02, a seminar taken in the fall of the senior year, is devoted to developing an honors thesis. The work of the seminar includes close supervision of the proposal, research and writing stages of the project by a primary and secondary advisor selected by the student. The primary advisor must be selected from among the faculty of the Department of Political Science. The secondary advisor may be selected from among the same faculty or from among faculty of a related department or, in exceptional circumstances with the explicit approval of the coordinator of the program and with the consent of the director of graduate studies, from among advanced graduate students in the Department of Political Science.

Continued close faculty supervision of the project by means of seminar meetings and individual conferences occurs in Political Science 200H.03. Completion of the thesis, its evaluation, and its defense before a three-member committee composed of the coordinator of the program together with the primary and secondary advisors warrants Graduation with Distinction in political science if a grade of A- or better is assigned to the student's thesis. The intradepartmental concentration option is partially satisfied by successful completion of the two-course senior honors thesis seminar. Further information may be obtained from the honors program coordinator or from the director of undergraduate studies.

THE MINOR

Requirements. A minimum of five courses in political science, no more than two of which may be numbered less than 100. Four courses must be Duke courses taught by a member of the Duke Political Science instructional staff, but one course may be a transfer course. However, in satisfying the minor, students in the Robertson Scholars Program may count, exclusive of the transfer course, one course taken at UNC-CH. Courses taken Pass/Fair and Advanced Placement courses DO NOT satisfy course requirements for the minor.

Politics, Philosophy, and Economics
Professor Brennan, Director

A certificate, but not a major, is available in this program.

The Politics, Philosophy, and Economics interdisciplinary certificate program at Duke is designed to enable students to secure an understanding of the common foundations and the intersection of methods employed in normative inquiry by the three disciplines that make up the program. Political philosophy and political economy face similar questions and exploit common resources, and the alternative answers they provide to these questions are grounded in competing philosophical theories. Students intending to major in any of the three disciplines, or for that matter in any other discipline with an impact on public institutions and civil society, national and international governance, and economic development, will find the certificate’s program of studies valuable.

The Politics, Philosophy, and Economics certificate program is composed of eight courses, including: two cross-listed courses, one that functions as a gateway to the certificate program, a second that figures as its capstone, and six other classes in economics, philosophy, and political science.

PROGRAM PREPARATION

Preparation for participation in the gateway course should normally include the following prerequisites: a) Economics 1D, Introductory Macroeconomics, or Economics 51D, Economic Principles, and b) Philosophy 107, Political and Social Philosophy, or Political Science 123, Introduction to Political Philosophy. However, students without this previous preparation may enroll in the gateway course with the permission of the instructor.
PROGRAM REQUIREMENTS

Eight specified courses distributed across the three disciplines in accordance with the table below, including gateway and capstone courses.

Gateway Course

All students in the certificate program must take the Politics, Philosophy, and Economics introductory course:

Political Science 103 (C-L: Economics 103, Philosophy 146)

Capstone Course

In the spring semester of their senior year, students must take the Politics, Philosophy, and Economics capstone course:

Political Science 165 (C-L: Economics 104, Philosophy 165)

Core Courses

Beyond the gateway course, and prior to or concurrent with the capstone course, students must take a common core of microeconomics, rational choice, ethical theory/political philosophy, and the history of economic thought. The six courses will be chosen from three groups:

- Two economics courses: Economics 55D, 146 or 148 or 190S.
- Two political science courses: Political Science 139 or 168, 230S.
- Two philosophy courses: Philosophy 116, 117.

Portuguese

For courses in Portuguese, see Romance Studies.

Psychology and Neuroscience (PSY)

Professor Strauman, Chair; Research Professor Rabiner, Director of Undergraduate Studies; Adjunct Assistant Professor Lamoureux, Associate Director of Undergraduate Studies; Professors Angold, Asher, Bettman, Blumenthal, Cabeza, Caspi, Cooper, Costanzo, Costello, Curry, Dodge, Flanagan, George, Guzeldere, W. C. Hall, F. Keefe, R. Keefe, Leary, Levin, Lynch, Madden, March, Meck, Moffitt, Nowicki, Palmer, Payne, Purves, Putallaz, Roth, Rubin, Schmajuk, Sheppard, Sherwood, Shiffman, Siegler, Sikkema, Smith-Lovin, Spener, Surwit, Thompson, Vidmar, Whitfield, C. Williams, R. Williams, Woldorff, and Wood; Associate Professors Chartrand, Day, Fairbank, Fitzsimons, Groh, Huettel, Hill, LaBar, Larrick, Levin, Linville, Mazuka, Needham, Shah, Sherwood, Winfurt, Wells, and Welsh-Bohmer; Assistant Professors Bilbo, Brannon, Compton, Feng, Gibson-Davis, Linnenbrink-Garcia, Lynch, Marsh, Mitroff, Transue, Yin, and Zucker; Professors Emeriti Brodie, Coie, Crovitz, Eckerman, C. Erickson, R. Erickson, Kremen, Lockhead, Logue, Quinn, Stout, and M. Wallach; Research Professor L. Wallach; Associate Research Professor Gold; Assistant Research Professor Smart-Richman; Associate Clinical Professor Robins; Assistant Clinical Professors Bonner, Compton, and Edwards; Adjunct Professors Barbarin, Cox, Fail, Gariepy, Mcloyd, Ornstein, Reznick, Swartzwelder, and Vernon-Fegans; Adjunct Associate Professors Kurtz-Costes and Lynch; Adjunct Assistant Professors Curran, Hopfinger, Hussong, Serra, Stocking, and Taylor; Senior Research Scientist Winn; Research Associates Alexander, Batson, Cordes, Grimes, Jurkowski, and Stephens; Clinical Associates Fitzgerald and Whidby

A major or minor is available in this department.

The General Courses, coded (G), do not count towards an area of concentration, but do count towards the major. The Biological Bases of Behavior area, coded (B), includes courses on the nervous system, the learning process, motivation, neurochemistry, hormones, and other biological factors in their relationship to behavior. The Cognitive Psychology area, coded (C), includes the topics of sensation and perception, cognition, learning, language, memory, and psycholinguistics. Developmental Psychology, coded (D), emphasizes the
developmental aspects of all psychological processes such as sensory and motor behavior, cognition, children's thinking and reasoning, and social behavior. Courses in the Personality/Social Psychology area, coded (P), ultimately bear on the questions of human character and behavior, both normal and abnormal. These include personality, social and abnormal issues, along with strategies for the prevention of deviance.

11. Introductory Psychology. NS, STS Broad survey of the field of modern psychology, primarily for the non-major. Focuses on the natural science study of behavior, emphasizing biological, evolutionary, cognitive, and developmental perspectives while placing this work in historical, social and philosophical context. The conceptual issues which unify the sub fields of psychology highlighted along with a consideration of the techniques and methods by which knowledge about brain, mind thought and behavior is acquired and refined. The implications for life and society of contemporary scientific approaches and technologies. Students must fulfill a departmental research requirement (if this is their first course in psychology) either by participation in psychology experiments or submitting a research paper. Does not count toward the psychology major for students matriculating after summer 1995. Not open to students who have taken 11A or 11B. Instructor: Weinfurt or staff. One course.


49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

91. Biological Bases of Behavior: Introduction and Survey (B). NS, STS An introduction to the methods, models, and reasoning that have led to discoveries about brain-behavior relations, and a critical evaluation of the current theories that guide our thinking about the neurobiology, development and evolution of sensory and cognitive processes, sleep, pain, emotion, hunger, and thirst as well as maternal and sexual behavior patterns. Students required to participate as subjects in three to six hours of psychological research if not done in a previous introductory class. Prerequisite: Biology 19 or Biology 25L; may be taken concurrently. Instructor: Lamoureux or C. Williams. One course. C-L: Neurosciences

92. Cognitive Psychology: Introduction and Survey (C). SS Overview of cognitive processes including pattern recognition, concept formation, attention, memory, imagery, mental representation, language, problem solving, and modes of thinking. The basic approach is both empirical (using data collection and analysis) and theoretical (building models using inductive/deductive reasoning). Application of basic laboratory results to cognition in everyday life. Students required to participate in three to six hours of psychological research if not completed in a previous introductory class. Instructor: Cabeza, Day, or Rubin. One course.

93FCS. Focus - Special Topics Seminars. Seminar for students in Focus Program only. Content varies by semester. Different courses (and areas of psychology) indicated by section number. Instructor: Staff. One course.

94FCS. Psychosocial Development of the Mind Through the Life Course. CCI, SS The mind as it changes across the life span. The impact of environmental, cultural, interpersonal input during adolescence and early adulthood. Psychosocial and physiological influences on the mind and cultural differences in mind development. Role of mind in identity formation. Special attention to developmental changes and challenges in adulthood and late life. Compare and contrast age differences and age changes in psychosocial development of mind. Open only to students in the Focus Program. Instructor: Gold. One course. C-L: Sociology 99FFCS

95FCS. Neurobiology of Mind. NS One course. C-L: see Neurobiology 93FCS; also C-L: Neurosciences

97. Developmental Psychology: Introduction and Survey (D). SS Overview of the cognitive, social, and emotional changes that occur throughout the lifespan, with emphasis on the period from infancy to adolescence. The approach examines both the empirical
evidence (data collection and analysis) and the theoretical models (constructs using inductive-deductive reasoning) used in understanding human psychological development. Instructor: Bonner, Brannon, Feng, or Needham. One course. C-L: Early Childhood Education

99. Personality and Social Behavior: Introduction and Survey (P). SS The determinants of socially significant human behavior—those residing in the person, those that are the product of interpersonal context, and those resulting from the interaction of both sources. Formative as well as contemporary influences considered. Emphasis on the reasoning, research designs and methods used to examine the complex interplay of individual and social context. Students participate in three to six hours of psychological research if not done in a previous introductory class. Instructor: Grimes. One course.

101. Research Methods in Psychological Science (G). NS, R, SS, W A hands-on experience in designing and conducting research in psychology. Theoretical topics included experimental and non-experimental methods, including observational, archival, and case-study methods. Problems of validity and control. Using these theoretical tools, students review literature, design experiments, collect data, analyze data, and write papers on areas such as learning, cognitive science, sensation and perception, and social and psychology. Prerequisites: one prior course in psychology and Psychology 117/Sociology 133, Statistics 101, 102, 103, 110, 112, 114, 200, 210, 213, or Mathematics 136. Instructor: Cooper of staff. One course.

102. Alcohol: Brain, Individual, and Society (B, P). NS, SS, STS Multidisciplinary course exploring the impact of alcohol use on individuals and society. Integrated segments focus on: biomedical effects; addiction and treatment; historical context of drinking; and college drinking issues. Not open to first-year students. Instructors: Rezvani, Roberts, Swartzwelder and White. One course.

103. Practicum. Introduction to the research of a faculty member, often preparing the student for independent study. Format varies, including readings, data collection and analysis, discussions, or other activities. Term paper required in the form of an independent Study proposal using the department form for this purpose; does not oblige the student to take the independent study. Consent of instructor required. Pass/fail grading only. Does not count toward the major. Instructor: Staff. Half course.

105. Myths and Mysteries of Memory (C). SS, STS Understanding the feats and failures of memory in everyday situations. Exploration of the use and misuse of memory of interest across professions (e.g., medicine, law, advertising, education), via demonstrations, lecture, and readings. Topics include repression, how to study exams, remembering names, early childhood memories, amnesia, photographic memory, eyewitness testimony, and pharmacological effects. Instructor: Marsh. One course.

106. The Psychology of Gender (P). CCI, SS The psychology of gender in this country, including sex differences, separation and individuation, and achievement; sexuality; sex-roles; mental health problems particularly salient to genders: cultural influences on gender development and views within the field of psychology of gender. Instructor: Vieth. One course. C-L: Women's Studies

108A. Educational Psychology (C, D). CCI, EI, SS One course. C-L: see Education 118; also C-L: Children in Contemporary Society

109A. Health Psychology (P). SS The role of behavior in the etiology, pathophysiology, and treatment of cardiovascular disease and endocrine disorders; psychoneuroimmunology; chronic pain; and life style behaviors with health consequences such as smoking and eating disorders. Emphasis on the research designs, methods and reasoning by which one infers the relationship between behavior and various health changes. Not open to students who have taken Psychology 98. Instructor: Keefe. One course. C-L: Health Policy

109B. Stress and Coping (P). SS Psychological theory and empirical work on stress and coping, with an emphasis on post-traumatic stress. Focus on the research designs, methods
and reasoning by which stress is inferred and its effects assessed. Prerequisite: Psychology 99. Instructor: Keefe. One course.

109C. Behavioral Medicine (P). SS, STS Overview of the interdisciplinary field of behavioral medicine, emphasizing the integration of the social and behavioral sciences in the service of understanding physical health and illness. Psychosocial risk factors for medical illness; biobehavioral mechanisms whereby psychosocial risk factors affect pathophysiology; and biobehavioral intervention to treat and rehabilitate patients with major medical disorders in interdisciplinary settings. Psychology 109A encouraged as a prerequisite, but not required. Instructor: R. B. Williams. One course.

111. Learning and Adaptive Behavior (B, C). NS Principles of instrumental learning in animals and humans. Topics include elicitation, classical conditioning, reinforcement, punishment, problem solving, behavioral economics, and verbal behavior. Focus on empirical data, quantitative analysis, research methodology, and technologies generated from learning research. Prerequisite: none, but some knowledge of quantitative science desirable. Instructor: Schmajuk. One course. C-L: Biology 167

112. Introduction to Cognitive Neuroscience (B, C). NS The biological bases of higher brain function, including perception, attention, memory, language, emotion, executive functions and consciousness. Emphasis on the human brain, and the current theories and controversies in this rapidly growing field. Comparisons of human brain function with machine intelligence and the higher brain functions of non-human animals. Prerequisites: some background in cognitive psychology (Psychology 92 or equivalent) and biological psychology (Psychology 91 or Psychology 135 or equivalent) desirable, but not essential. Instructor: Purves and staff. One course. C-L: Philosophy 149, Neurobiology 112

113A. Self and Society (P). CCI, SS One course. C-L: see Cultural Anthropology 141; also C-L: Women's Studies

113B. Psychological Anthropology (C, D, P). SS One course. C-L: see Cultural Anthropology 165; also C-L: Early Childhood Education

114. Personality (P). SS Theory and research dealing with the human personality, focusing on universal features of personality that are part of human nature, ways in which personality variables and processes differ across people, and the processes through which personality relates to thought, emotion, and behavior. Topics include personality traits, genetic and biological influences on personality, cognitive aspects of personality, motivation and emotion, self and identity, unconscious processes, personality measurement, and personality dysfunctions. Instructor: Leary. One course.

115. The Psychology of Consumers (C, P). EI, SS The psychology of consumers and ways of influencing consumer behavior. How knowledge of consumer psychology and behavior is used to develop marketing techniques. How to use consumer psychology in making business decisions; the ethical issues associated with consumer influence. Prerequisites: Prior course in Psychology. Instructor: Chartrand. One course. C-L: Markets and Management Studies

116. Social Psychology (P). SS The effects of social interaction and social processes on a wide range of individual attitudes and behaviors (for example, conformity, leadership, prejudice, aggression, altruism). Emphasis on the logic, reasoning, research designs, and methods by which knowledge is generated. Equal attention to experimental and non-experimental research. Instructor: George, Leary, and Wood. One course. C-L: Sociology 106, Women's Studies

117. Applications of Statistical Methods in Psychology (G). QS Introduction to statistical methods commonly used in psychological research. Topics in applied statistical methods including: measures of central tendency and variability; probability and distributions; confidence intervals and hypothesis testing; t-test and analysis of variance; correlation and regression; and chi-square tests. Calculate and interpret statistics with reference to data and research questions typical in psychological research. Includes a lab section with instruction
in the management and analysis of psychological data using statistical software designed for use in social science research. Required for the major. Instructor: Hoyle. One course.

118. Special Topics in Social Psychology (P). SS Study of one broad area in social psychology; exact content area varies by semester. Possible areas include social cognition, social influence, and applied social psychology. Prerequisite: Psychology 99 or 116. Instructor: Staff. One course.

119A. Abnormal Psychology (P). CCI, EI, SS Disordered behavior and constructive personality change viewed in interpersonal and social context for purposes of understanding normal and abnormal personality development and functioning. The research designs, methods and reasoning by which psychologists assess behavioral disorders and personality variants. How these disorders vary from culture to culture and the ethical issues associated with treatment. Instructor: Rabiner, Robins, or Veith. One course.


120. Comparative Psychology (B). NS A survey of animal behavior from the psychologist's perspective. Prerequisite: Biological Anthropology 93, Biology 25L, or Psychology 91. Instructor: Lamoureux. One course. C-L: Biology 168, Neurosciences

121. Early Cognitive Development (C, D). SS Conceptual development in humans from birth through early childhood. Topics include infants' and young children's perception of the world, their acquisition of knowledge about the world, and the way they remember and use this knowledge over time. Particular consideration given to the question of whether children's thinking about objects, living kinds, and persons involves general-purpose vs. specialized cognitive processes. Prerequisite: Psychology 92 or 97. Instructor: Schwartz. One course.

122. Psychology of Thinking (C). SS, STS Overview of high level cognitive processes in both theoretical and applied areas. Emphasis on the research designs, methods, and reasoning for understanding how people engage in categorization, problem solving and decision making. The social implications of cognitive testing and an appreciation of the role of human factors in a technological age. Prerequisite: one previous psychology course. Instructor: Marsh or Serra. One course.

123. Human Memory (C). SS A review of the theoretical and empirical study of human memory. Emphasis on research designs, methods, and reasoning by which understanding is gained of memory across the life span. Topics include transient and short-term memories, models of memory, unconscious memories, and memory processes and tasks. Covers both data and theory, historical and contemporary research, behavioral and brain research. Prerequisite: Either Psychology 92 or 105. Instructors: Marsh, Rubin, or Serra. One course.

124. Human Development (D). CCI, EI, R, SS One course. C-L: see Human Development 124; also C-L: Sociology 124, Early Childhood Education

125. Memory and the Brain (B). NS Brain function in relation to the phenomenon of memory. Historical and current perspectives. Instructor: Swartzwelder or staff. One course.

126. Behavior and Neurochemistry (B, P). NS The role of brain chemicals (neurotransmitters, peptides, and hormones) in behavior. Hypotheses addressing the neurobiology of mental disorders and how they can be treated by pharmacological intervention. Emphasis on the development and critical evaluation of pharmacological models of brain function using mathematical and/or deductive/inductive models of reasoning and experimentation. Prerequisite: Psychology 91. Instructor: Meck. One course. C-L: Neurosciences
127. Drugs, Brain, and Behavior (B). NS One course. C-L: Pharmacology and Cancer Biology 160

128. The Creative Mind (C). ALP, SS The nature of the creative thinking; the conscious and unconscious processes involved. Creativity in problem solving, sciences and math, the visual arts, literature, music, movies, theater, business, and destruction. Instructor: Schmajuk. One course. C-L: Information Science and Information Studies

129A. Political Psychology. CCI, SS One course. C-L: see Political Science 121

130. Psychosocial Aspects of Human Development (D). CCI, EI, SS One course. C-L: see Human Development 180; also C-L: Sociology 169, Early Childhood Education, Ethics

131. Social Development (D), CCI, SS Overview of the social development of children from birth to age twelve. Focus on aspects within the family, including parent-child and sibling relationships; family socialization strategies, including gender socialization and parenting; and demographic characteristics such as family constellation and socioeconomic status. Socialization agents such as school, peers, media and community context explored as they relate to social development. Readings focusing on children and families from diverse backgrounds. Prerequisite: Psychology 97 or 99. Instructor: Asher or Hill. One course. C-L: Early Childhood Education, Children in Contemporary Society

132B. Cross-Cultural Perspectives on Development: A View from Japan (C, D). CCI, SS Cross-cultural examination of issues in developmental psychology from an Asian perspective, especially from modern day Japan. Selected topics in developmental psychology evaluated from the perspectives of Japan and other cultures in Asia, and contrasted to American studies. Instructor: Mazuka. One course. C-L: Cultural Anthropology 166, International Comparative Studies 101G

133. Psychology of Ethnicity and Context (D). CCI, SS Focuses on children and families as they are shaped and impacted by race, culture, ethnicity, socioeconomic status, and community/neighborhood context. Aspects considered include: parental beliefs, expectations, disciplinary strategies, children's mental health and academic and career goals. Prerequisite: Psychology 97 recommended. Instructor: Hill. One course. C-L: African and African American Studies 134, Global Health

134. Psychology of Language (C). R, SS Examination of linguistic structures and their psychological "reality," language and cognition, biological bases, animal communication, language pathologies, nonverbal communication, linguistic universals, and bilingualism. Everyday language phenomena (for example, slips of the tongue) as well as experimental and theoretical research. Emphasis on the research designs, methods and reasoning by which the features of language are assessed. Research proposal required. Instructor: Day. One course. C-L: Linguistics 110

135. Fundamentals of Neuroscience (B). NS, STS Introduction to neuroscience, including: basic physiology; microstructure and anatomy of neural tissues; mechanisms of neuronal development and integration; sensory-motor control; auditory, visual, and olfactory systems; the neural foundations of animal behavior; and the evolution of nervous systems. Emphasis on the development and critical evaluation of neuronal theories of brain function using biochemical, mathematical, and/or deductive/inductive models of reasoning and experimentation. Prerequisites: Biology 25L, and Chemistry 12L or 22L or equivalent. Instructor: Bilbo, LaBar or Meck. One course. C-L: Biology 154, Neurobiology 154, Neurosciences

137. Adolescence (D). SS Adolescent development, including identity formation, intelligence, sexuality, peer and parent relationships, vocational choices, drugs, and psychopathology. Theory and empirical findings. Emphasis on the methods and research designs that have led to an understanding of adolescent development. Required participation in service learning. Instructor: Stocking. One course. C-L: Children in Contemporary Society
138. Social Psychology of Business (P). CCI, SS Application of social psychological principles to the understanding of how businesses respond to significant environmental change. Focus on multinational firms to allow for consideration of cross-cultural influences. Prerequisites: Psychology 116/Sociology 106 or a Markets and Management course. Instructor: Bleak and Gerend. One course. C-L: Markets and Management Studies

139. Motivation and Cognitive Influences in Social Psychology (P). SS Course details the important intersection of cognitive and motivational approaches within social psychology with emphasis on basic social psychological principles and theories that have emerged from this synergy. Explores how a "motivated cognition" approach to social psychology has influenced research on self-concept, self-regulation, achievement behavior, group and interpersonal processes, stereotyping and prejudice, among other fundamental topics and issues in the field. In addition to required midterm and final, students will be expected to actively participate in discussions and to present a more in depth analysis of weekly readings to class at least once during semester. Instructor: Shah. One course.


141S. Emotions and the Brain (B, C). NS A broad perspective of the expanding field of affective neuroscience. How emotions are mediated in the brain. Overview of neural theories of emotion along with the relevant neuroanatomy and psychopharmacology, animal models of emotion, insights from human cognitive and clinical neuroscience. Emphasis on understanding the mechanisms by which emotion influences cognitive processes, including perception, attention, learning, and memory. Prerequisites: Psychology 91 or 92 required and Psychology 126 or 135 preferred. Instructor: LaBar. One course.

142S. Thought Without Language (B, C, D). NS The nature of thought without language and the representational strategies employed by infants and animals when thinking about number and other seemingly complex subjects. Comparison of how infants and non-human animals solve similar problems in an effort to understand more broadly the type of cognition that is possible without language. Topics include infantile amnesia, serial memory, symbolic models, object permanence, imitation, theory of mind, causality, and tool-use. Methods, models and reasoning whereby inferences are made about thought processes in animals and children. Prerequisite: Psychology 91 or 97. Instructor: Brannon. One course.

144S. Thought in Action: The Origins of Human Tool Use (B, C). NS, R, SS, STS Current theory and empirical research on the cognitive bases of tool use in humans, non-human primates, and other animals. Animal cognition and behavior, evolutionary psychology, cognitive development, cognitive neuroscience, object-user interfaces from engineering, and impact on society from the early industrial age to the present. Instructor: Greif. One course. C-L: Biological Anthropology and Anatomy 182S

145S. Learning to Read (C, D). R, SS Development of reading skills, psychology of reading, reading education. Topics include developmental theories of reading, learning to read in other languages, Whole language and Phonics teaching methods, cognitive processes in skilled reading, reading difficulties and dyslexia, home environment and cultural effects, teaching methods, reading tests, policy implications. Instructor: Feng. One course. C-L: Education 148S, Children in Contemporary Society


147S. The Developing Mind and Brain: Developmental Cognitive Neuroscience (B, C, D). NS, R The implications of novel findings from field of developmental cognitive neuroscience for broader debates around issues in developmental science including nature
versus nurture, critical periods in brain and behavioral development, and the modularity of mental functions. The major methods of developmental cognitive neuroscience including functional magnetic resonance imaging (fMRI) and recordings of evoked response potentials (ERPs). Focus on the special challenges that emerge when applying these methods to the study of infant and child development; opportunities for experiences with these tools. Prerequisite: One course in developmental psychology. Instructor: Staff. One course. C-L: Children in Contemporary Society

148S. Neuroscience and Cognitive Aging (B, C). NS, R, W Theories of cognitive aging (emphasis on the psychobiological/neurobiological perspectives) focusing on processes of perception, attention, decision making, memory and movement through both text and journal readings. Neurological diseases of aging (i.e., Parkinson's disease, Alzheimer's disease). Focus on developing skills for scientific grant writing. Instructor: Jurkowski. One course.

149S. Reward and Addiction (B). NS Biological and psychological mechanisms of reward and addiction from a "molecules to mind" perspective. Topics include: neural mechanisms of reward, vulnerability to addiction, self-medication, addiction as a learning process, animal models of addiction, gateway drugs, roles of stress and impulsivity, adolescence, genetic vs. environmental predisposition, neural alterations resulting from drug intake. Prerequisite: Psychology 91 or Psychology 135/Biology 154/Neurobiology 154. Instructor: Schramm-Sapyta. One course. C-L: Pharmacology and Cancer Biology 149S

150S. Hormones and Behavior (B, P). NS, W The adaptive functions and physiological mechanisms of hormone-behavior interactions through an examination of research and models in the field. Empirical and theoretical papers on the hormonal modulation of reproduction, rhythms, sexual differentiation, mood, learning and memory; perspectives on topics ranging from clinical to basic science, with consideration of ethical issues. Research paper required. Prerequisite: Psychology 91. Instructor: C. Williams. One course. C-L: Neurosciences, Women's Studies

151S. Clinical Interventions with Children and Families (D, P). SS Study of techniques used by clinical psychologists to treat and prevent psychological disorders of childhood. Focus on a) understanding major types of clinical interventions, b) how clinical psychologists develop, implement, and evaluate interventions, c) ethical issues in treating children and families, d) integration of research and practice in the treatment and prevention of childhood psychological disorders. Enrollment limited to juniors and seniors. Prerequisites: Psychology 119B or 119A and a research methods course or statistics course. Instructor: Hardy. One course.

152S. Cognitive Psychology of Oral Traditions (C). CCI, SS Oral traditions and collective memory studied in social contact. Impact of writing on oral literature and culture, on society and cognitive activities. Basic knowledge of cognitive mechanisms; examples of various oral traditions. Instructor: Rubin. One course. C-L: Linguistics 152S

153S. Issues in Language Development (C, D). CCI, SS, W "Critical Period" in language development, the role of 'motherese,' infant speech perception, innovative word creation, telegraphic speech, bilingualism and second language learning, learning to read, language, cognition and culture, and language pathology. Focus on learning to critically evaluate empirical research papers from various areas of language development. Appropriateness of hypotheses, methodology and analyses, and whether or not the data the researchers gather warrants the conclusions they draw. Instructor: Mazuka. One course. C-L: Linguistics 153S, Early Childhood Education, Children in Contemporary Society

154S. Achievement Motivation (P,D). R, SS Psychological perspective on development of achievement motivation in educational settings (primarily elementary through college). How students' responses to questions such as "Can I do this task?" and "Why do I want to do this task?" shape engagement and learning. Prerequisites: junior or senior status and
completion of Psychology 97, 99, or 116. Instructor: Linnenbrink-Garcia. One course. C-L: Children in Contemporary Society

156S. Psychoneuroimmunology: Brain and Behavior in Health and Disease (B). NS An exploration of the interactions among the nervous, immune, and endocrine systems, and their consequences for psychology and behavior, using examples from both the human and animal literatures. Topics include the role of the immune system in cognition and emotions, neuroendocrine-immune interactions during stress, and the effects of stress on health and disease. The potential role of infections in the etiology of psychopathology (depression, schizophrenia) and neurodegenerative conditions (Parkinson’s, Alzheimer’s). Prerequisite: one of the following: Psychology 91, Psychology 135, Biology 25L, or equivalent. Instructor: Bilbo. One course.

157S. Life Span Analysis of Social Relationships (D, P). CCI, R, SS, W The developmental changes that occur in social relationships (for example, parent, sibling, peer) across the life span; the differing roles these relationships play in the development of the individual. Particular attention given to understanding gender and ethnicity differences in the forms and functions of relationships. Prerequisite: Psychology 97 or 99. Instructor: Putallaz. One course.


159S. Biological Psychology of Human Development (B, D, P). R, SS, W Multidisciplinary perspectives bearing on key processes in human development from infancy through old age; the way that biological and psychological processes act together in normal and pathological behavior and development. Clinical case material and videotapes. Preference given to senior psychology majors and to students in the Program in Human Development. Consent of instructor required. Instructor: Thompson. One course. C-L: Early Childhood Education, Human Development


160BS. Social Science and Policy Research II (D, P). R, SS One course. C-L: see Public Policy Studies 183BS

161AS. Medical Decision Making (C). SS, STS Various topics in medical decision making explored from the perspective of behavioral science: emotion and medical decisions; allocation of health care resources; adaptations to changing health states; cognitive shortcuts used by patients and care providers; communication and understanding of risk information; informed consent; and improving the quality of decision making. Prerequisite: include one of the following Psychology courses: 11, 93BS, 92, 109 (A, B, or C), or 112, or consent of instructor. Instructor: Weinfurt. One course.

161S. Emotion and Cognition (C, P). SS How emotion, whether generated from everyday experiences or clinical disorders (such as depression, posttraumatic stress disorder, schizophrenia) impact critical memory and cognitive processes; emphasis on both psychological and physiological models. Instructor: Staff. One course.

163S. Coping with Catastrophic Events (P). Impact, recovery process, and treatment techniques including psychological interventions focused on individuals, groups, and community. Instructor: Keefe. One course.

166S. Cognitive Science: Fact and Fiction (C). NS, R Skeptical analysis of cognitive science as practiced and popularized in the media. Analysis of discrepancies between media and scientific claims regarding areas such as repressed memory, brain imaging, heritability, and psychotherapy. Examination of scientific career demands such as peer review, journal publications, and research funding. Topics interwoven with a review of errors common in reasoning particularly with respect to probabilistic reasoning, critical thinking, and the
public misperception of the practice and principles of scientific psychology. Prerequisites: Psychology 92 and one other psychology course. Instructor: Staff. One course.

167S. Social Neuroscience (B, C, P). NS, R Neural mechanisms underlying social phenomena. Topics include: social perception and cognition, person perception, attitudes, and interpersonal processes. Reciprocal interaction between brain function and social behaviors. Recommended prerequisites: At least one class in neuroscience or biological basis of behavior and some knowledge of social psychology. Instructor: Morris. One course.

170S. A-R, U-Z. Selected Problems. New courses not yet in the bulletin are designated as 170S or 270S depending on their level. Since all faculty offer these courses, their contents vary accordingly. Different courses indicated by the letter. Instructor: Staff. One course.

172S. Psychology of Obesity and Eating Disorders (B, P). CCI, NS, R, SS Review of recent perspectives on psychology, physiology, and treatment of obesity and eating disorders. Topics will include: epidemiology, physiology of energy balance, genetics, race and gender as they relate to these disorders, medical and psychological comorbidities, behavioral and medical treatments, and review of the safety and efficacy of fad diets. Visit to the Duke Diet and Fitness Center to meet with patients and staff. Some background in biology and psychology and consent of instructor are required. Instructor: Surwit. One course.

173S. Theoretical Issues in General Psychology (C, D, P). SS Examination of basic issues that cut across different areas of psychology, with emphasis on the nature of science and knowledge, the kinds of knowledge psychology may provide, and different conceptions of mind. Instructor: L. Wallach. One course.

174S. Infancy (C, D, P). R, SS Critical analysis of research on perceptual, cognitive, social, emotional, and motor development in human infants. Existing models of development in these areas evaluated in light of recent experimental findings. Final projects integrating research findings across different domains, creating novel hypotheses and designing experiments to test these hypotheses. Prerequisite: Psychology 97 and one other psychology course. Instructor: Needham. One course. C-L: Children in Contemporary Society

175AS. Motivational Approaches in Social Psychology (P). R, SS Social psychology on motivation and its role in determining nature and consequences of self and social-regulation. Focus on research and theorizing on differing motivations underlying social behavior (such as the motivations characterizing stereotyping and prejudice as well as achievement behavior and interpersonal relationships). Prerequisite: Psychology 99 and either statistics or a psychological research/methods course. Instructor: Shah. One course.

175BS. Psychology of Positive Emotion and Experience (P). CCI, R, SS Critical examination of the positive psychology movement, including prior contributions to the field. Measures and quality of data; issues related to gender, ethnicity, and culture. Focus on applications to health. Prerequisite: One prior psychology class. Instructor: Staff. One course.

176S. Great Ideas in Psychology (C). R, SS Ideas in psychology drawn from many content areas (including perception, personality, motivation, biological, social, cognitive, developmental, learning) and various methodological approaches (including experimental, introspection, observation, interview, longitudinal, computer simulation). Inductive/deductive approaches to psychology. Research paper required. Prerequisite: junior or senior psychology-major status and consent of instructor. Instructor: Day. One course.

177S. Human Sexuality (B). NS, STS The biological, endocrinological, and physiological correlates of human sexual behavior including sexual differentiation, pubertal development, adult male and female sexual behavior, premenstrual syndrome, menopause, sexuality and aging, homosexuality, and deviant sexual behavior. Emphasis on the reasoning, research designs, and methods for understanding gender roles and sexuality. Prerequisite: Psychology 91 or background in biology. Instructor: Sloan. One course. C-L: Study of Sexualities
179S. Neuroscience of Illusions: Sensation, Perception and the Misinterpretation of Reality (B, C). NS Human sensory systems and their limitations. Sensorineural mechanisms, the brain's reconstructions and representation of the physical world, cortical processing of space and time, conscious and unconscious mental operations. Prerequisites: Psychology 91 or Psychology 135/Biology 154/Neurobiology 154. Instructor: Tucker. One course.

180S. Advanced Topics in the Psychology of Gender (P). SS Study of one broad domain in the psychology of gender, exact content area to vary by semester. Emphasis on how gender influences human experience and behavior. The research designs, methods and reasoning for understanding gender issues. How gender biases have shaped scientific inquiry and how new knowledge about the psychology of gender influences ethical, sociological and public debates. Possible areas include theory of gender differences; victimology; gender role socialization; psychological issues in marriage, sexuality, and parenthood; biosocial aspects of gender; gender and mental health; and achievement. Prerequisites: Psychology 106 and consent of instructor. Instructor: Staff. One course. C-L: Women's Studies

181BS. Laboratory in Animal Mind, Learning, and Adaptive Behavior (B, C). NS, R, W Tools and methods in animal learning and cognition. Field observations and lab exercises, using locally available animal species, leading to a research project. Instructor: Staff. One course.

181CS. Brain Waves and Cognition (B, C). NS, R The Event-Related Potential (ERP) method and its use in cognitive neuroscience. Emphasis on the reasoning, research designs and methods used in measuring event-related potentials. How ERPs are recorded, analyzed, and used to study cognitive processes. Students complete projects and experience this methodology. Prerequisites: two of the following three courses (Psychology 91, 92, or 135). Instructor: Woldorff. One course. C-L: Neurosciences

181FS. Functional Neuroimaging (B,C). NS, R Overview of use of functional magnetic resonance imaging (FMRI) in the investigation of human sensory, motor, and cognitive function. Topics will include FMRI to study human brain systems involved with movement, sensation, perception, and memory. Students will design and execute a neuroimaging experiment. Consent of instructor required. Instructor: Huettel. One course.

182BS. Perception and the Brain. NS, R Explores capacities and limitations of human sensory systems. How the sense organs detect objects and events and what brains then do with that information. Concentrates primarily on the visual system, with some forays into other sensory modalities. Instructor: Groh. One course.

183AS. Research Methods in Developmental Psychology (D). R, SS, W Prerequisite: Psychology 97 or consent of instructor. Instructor: Staff. One course. C-L: Early Childhood Education

183BS. Child Observation (D). R, SS, W Introduction of research methods used to study children, with particular emphasis on observational techniques. Focus on developing proficiency in research methodology, becoming skilled at communicating research findings to other psychologists, and increasing knowledge and expertise with young children. Consent of instructor required. Instructor: Grimes or Putallaz. One course. C-L: Early Childhood Education, Children in Contemporary Society

185BS. Research Methods in Social Psychology (P). R, SS, W Study of empirical research methods used to study contemporary issues in social psychology, including both experimental and nonexperimental strategies. Prerequisite: Psychology 99 or 116. Instructor: Costanzo, Richman, or staff. One course.

Prerequisites: Psychology 99 and Statistics 101 or the equivalent. Instructor: Blumenthal. One course.

185DS. Research Methods in Psychopathology and Psychotherapy (P). R, SS, W Classic and contemporary research methods for the diagnosis and investigation of psychopathology as well as for conducting psychotherapy outcome and process research. Focus on developing proficiency in research methodology, developing skill in interpreting research reports and communicating research findings to other behavioral scientists, and increasing knowledge in the content domains of psychopathology and psychosocial intervention. Prerequisites: Junior or senior status and consent of instructor. Instructor: Strauman. One course. C-L: Global Health

190S. History of Modern Psychology (B, C, D, P). SS, STS Major developments in psychology from the late nineteenth century to the present, with emphasis on the history of ideas. The experimental beginnings of psychology as a science, psychoanalysis, evolutionary thinking, behaviorism, cognitive psychology, and the psychology of social issues. Instructor: L. Wallach. One course.

191. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Meets general requirement of a curriculum Research (R) course but does not fulfill major requirement for an advanced seminar or methods course. Junior year fall. Prerequisite: Two courses in Psychology. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course. C-L: Neurosciences


194. Research Independent Study. R See Psychology 191. Senior year spring. Prerequisite: Two psychology courses. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course. C-L: Neurosciences

195S. Topics in Neuroscience (B). NS, R, W A formal research and training component of the Howard Hughes Forum in Neuroscience that includes review of directed reading and research in both theoretical and experimental neuroscience. Emphasis on the development of the ability to critically evaluate empirical research and to construct mathematical or deductive/inductive models. Final project includes preparation of a formal research proposal and a review of the role of ethics in science. Enrollment in an independent study and consent of instructor required. Instructor: Meck. One course. C-L: Neurosciences

196T. Junior Tutorial. An in-depth historical or theoretical analysis in a field of special interest under the supervision of a faculty member, who is responsible for planning and directing the course of study. The final product for the course is a substantive paper containing significant analysis and interpretation of a previously approved topic. Does not meet major requirements for seminar or a research methods course. Two prior psychology classes and consent of faculty instructor and DUS required. Meets as a regularly scheduled class. Open only to juniors. Instructor: Staff. One course.

197T. Senior Tutorial. An in-depth historical or theoretical analysis in a field of special interest under the supervision of a faculty member, who is responsible for planning and directing the course of study. The final product for the course is a substantive paper containing significant analysis and interpretation of a previously approved topic. Does not meet major requirements for seminar or a research methods course. Two prior psychology classes and consent of faculty instructor and DUS required. Meets as a regularly scheduled class. Open only to seniors. Instructor: Staff. One course.
For Advanced Undergraduates and Graduates

200A. Graduation with Distinction Thesis Preparation Workshop I. Designed to help prepare students for writing of Graduation with Distinction thesis. (Restricted to distinction candidates.) Topics include: variation in experimental approach, design, and data analysis; thesis preparation using APA format; presentation of results for scientific conferences. Practical, science-writing workshops intermixed with research presentations by departmental faculty to provide different perspectives on methodology within the field. Pass/Fail grading only. Consent of director of undergraduate studies required. Instructor: Staff. Half course.

200B. Graduation with Distinction Thesis Preparation Workshop II. Continuation of Psychology 200A. Focus on completion and submission of Graduation with Distinction thesis. Pass/Fail grading only. For undergraduates only. Consent of department required. Instructor: Staff. Half course.

202S. Autobiographical Memory (C). SS A review and critical analysis of the literature, theory, and empirical study of autobiographical memory within cognitive psychology. Emphasis on the reasoning, research designs, and methods used in examining autobiographical memory. Consent of the instructor required. Instructor: Rubin. One course.

203S. Genetics and Environment in Abnormal Behavior. EI, NS, SS Introduces students to an emerging topic in behavioral science: the interaction between genes and environments. Evaluates research showing that genes influence susceptibility to the environmental causes of abnormal behavior, and research showing that genes' connections to behaviors depend on environmental experiences. Readings are primary journal articles. Topics include the design and analysis of genetic research into mental disorders, and ethical issues stemming from genetic research into human behavior. Prior coursework in statistics/research methods, genetics, and/or abnormal psychology is desirable. Consent of instructor required. Instructors: Caspi and Moffitt. One course.

205S. Children's Peer Relations (D). SS Examination of the empirical literature with emphasis on the functions that peers serve for children, the developmental course of these relationships, the clinical ramifications and possible explanations for inadequate peer relations (including an examination of the family's role), and interventions used to improve children's relationships with their peers. Regular opportunities to analyze, critique, and synthesize primary research literature. Consent of instructor required. Instructor: Asher or Putallaz. One course. C-L: Early Childhood Education, Children in Contemporary Society

206S. Pediatric Psychology (D, P). SS The conceptual and methodological bases for the field. Emphasis on the reasoning, research designs, and methods implemented at the interface of behavioral and biomedical issues concerning health care for children. Case material illustrating how developmental, biological, and psychosocial processes act together in child health and illness. Focus on adjustment and coping with illness and treatments related to cystic fibrosis, sickle cell disease, cancer, diabetes, and seizure disorders. Consent of instructor required. Instructor: Bonner. One course. C-L: Early Childhood Education, Children in Contemporary Society

208S. Seminar in Emotion (D, P). SS Theories of emotion, covering biological, developmental, social, ethological, and cultural perspectives. Topics include facial and vocal expression of emotion, individual differences in emotion development, the role of emotion in social relationships, emotion and psychopathology, and emotion and physical health. Prerequisite: Psychology 99 or 108 and consent of instructor. Instructor: Staff. One course. C-L: Women's Studies

214S. Motivational Approaches to Social Psychology (P). SS Advanced topics in the reemerging focus in social psychology on motivation and its role in determining the nature and consequences of self and social-regulation. Focus on research and theorizing on differing motivations underlying social behavior (e.g., the motivations characterizing stereotyping and prejudice as well as achievement behavior and interpersonal relationships).
Students expected to read research articles and chapters from the leading social psychology outlets and to actively discuss the merits and limitations of this theory and research. Consent of instructor required. Instructor: Shah. One course.

216S. Gender, Pain, and Coping (P). R, SS Sex and gender differences in and pain coping; psychological, social, cultural, and biological mechanisms that underpin these differences. Consent of instructor required. Instructor: Keefe. One course.

218S. Personality, Stress, and Disease (P). SS, STS The interaction between person and social environment as a contributor to development of physical disease. Both epidemiological and laboratory-based research considered. Prerequisite: Psychology 109A for undergraduates and consent of instructor. Instructor: R. B. Williams. One course.


226S. Cognitive Neuroscience of Memory (C). NS Research on the neural correlates of memory in humans. Neuropsychological studies with brain-damaged patients and functional neuroimaging studies with healthy individuals. Cognitive neuroscience models of memory, including episodic memory, working memory, semantic memory, priming, and procedural memory. Prerequisite: Psychology 91 or Psychology 92 and consent of instructor. Instructor: Cabeza. One course.

227S. Behavioral Physiology: Basic Systems (P). SS Organ systems review of physiology, emphasizing the role of the central nervous system and behavior in physiological function. Emphasis on the research designs, methods, and reasoning by which the physiology of behavior is understood. Prerequisite: Psychology 91 or 159S for undergraduates and consent of instructor. Instructor: Surwit. One course.

230S. Stereotypes and Stigma (P). CCI, SS Experimental research in stereotyping and stigma; readings from psychology, public health, and sociological perspectives on issues related to ethnicity, gender, and social class. Consent of instructor required. Prerequisites: Psychology 99 and 116. Instructor: Richman. One course.

238S. Everyday Cognition (C). SS Selected cognitive concepts (for example, encoding, retrieval, representation, information load) and their application to everyday situations. Cognition in the classroom, courtroom, hospital, grocery store, and laboratory, as well as on the job, athletic field, construction site, dance floor, and computer. For each situation: successful vs. mediocre performance, cognitive processes involved, task analysis, potential problems, experimental tests, and implications for both cognitive theory and everyday life. Class sessions include presentations by the instructor, students, and individuals from the everyday world. Prerequisites: for undergraduates: Psychology 92 or related course work and consent of instructor. Instructor: Day. One course.

241S. Affective Neuroscience (B, C). NS A critical examination of current theory and experimental research related to neurobiology of emotional information processing and emotion-cognition interactions. Topics range from animal studies to clinical disorders, including neurogenomics, social cognition, functional brain imaging, emotional learning and memory, neuroethics, and individual differences. Basic background in neuroanatomy and cognitive neuroscience expected. Consent of instructor required. Prerequisites: Psychology 135 or Psychology 112. Instructor: LaBar. One course.
242S. Nonverbal Cognition. Exploration of Nonverbal cognition in animals and human infants. Focus on nonverbal counting and the relationship between the representation of number, time, and space. Topics include animal cognition, developmental psychology, neuropsychology, and brain imaging to sketch a complete picture of how the mind represents number in the absence of linguistic counting. Upper level undergraduates may enroll with consent of the instructor. Prerequisite: Consent of instructor. Brannon. One course.

249S. Anthropology and Psychology (C, P). CCI, SS One course. C-L: see Cultural Anthropology 249S


258S. Social Behavior and Personality (P). R, SS A broad examination of current theory and research on the interpersonal, personological, and social cognitive influences on social behavior and social interaction. Emphasis on contemporary thought on issues such as the nature of social influence, the function and construction of the self, relationship formation and maintenance, aggression and altruism, personality-based mediators and moderators of social behavior, and the application of social psychological theory and research to the study of clinical, social legal, and educational issues. Methodological approaches to the study of social phenomena including experimental, quasi-experimental, narrative, observational, and correlational models. Prerequisite: Psychology 99 or 116 and 185A or 185B and Statistics 101, Psychology 117 or equivalent and consent of instructor for undergraduates. Instructor: Wood. One course.

262S. Minority Mental Health: Issues in Theory, Treatment, and Research (P). CCI, SS Survey and discussion of theoretical, research, and clinical issues in minority mental health with special emphasis on African-Americans. Prerequisite: Psychology 119A for undergraduates and consent of instructor. Instructor: Staff. One course. C-L: African and African American Studies 262S

265. Introduction to Audition and Vocal Communication. One course. C-L: see Neurobiology 259; also C-L: Philosophy 259, Music 259


268. Brain and Language (B, C). NS One course. C-L: see Linguistics 268

270S. A-R, U-Z. Selected Problems. New courses not yet in the bulletin are designated as 170S or 270S depending on level. Since all faculty offer these courses, their contents vary accordingly. Different courses indicated by the letter. Consent of instructor required. Instructor: Staff. One course.

272S. Obesity and Eating Disorders (B, P). CCI, NS, R, SS A review of obesity and of the major clinical eating disorders (including binge eating disorder, bulimia nervosa and anorexia nervosa) and their pathophysiology, and their treatments. Prerequisite: Introduction to Audition and Vocal Communication. Instructor: Surwit. One course.

THE MAJOR

For the A.B. Degree

Major Requirements. Ten courses in psychology (eight of which must be at the level of 100 or above) are required for the major, which is devised to provide depth and breadth, a small group course in psychology, and familiarity with the quantitative techniques and methods used in psychology. For breadth, the student is required to take two introductory and survey courses including: (1) either 91 (Biological Bases of Behavior) or 92 (Cognitive Psychology), and (2) either 97 (Developmental Psychology), or 99 (Personality and Social Behavior). These introductory and survey courses define four areas of concentration in psychology. For depth, the student is required to take at least two courses in one of these areas in addition to the introductory and survey course. For instruction in small groups, the
student is to take at least one seminar (number 141S and above, including 200-level courses, but excluding the 181-185S methods courses). It is advisable that this seminar be in the student's area of concentration. For quantitative techniques used in psychology, the student is to take one of the following: Psychology 117, Mathematics 136; Sociology 133; Statistics 101, 102, 103, 110, 112, 113, 210B, 213. One of these courses will count toward the ten courses required of the major. Each student will be introduced to the methods used in psychology by taking one of the following courses: Psychology 101, or one of the laboratory courses, Psychology 181-185.

A student guidebook describing the curriculum in detail is available from the director of undergraduate studies. Of the ten psychology courses required for the major at least eight must be taken in the department at Duke; others, if approved, may count toward the 34 credits needed for graduation. Information is also available at http://www.psych.duke.edu.

For the B.S. Degree

As for the A.B. degree, with the following additions: (1) Mathematics 32 or equivalent; (2) six natural science courses in at least two of the following mathematics/natural science departments: mathematics (100 level or above, in addition to the Statistics requirement, above), computer science (100 level or above), chemistry, physics, biological anthropology and anatomy, and biology; (3) at least three of the six mathematics/natural science courses must be numbered 100 or higher; (4) at least one course that involves extensive laboratory or fieldwork (for example, experimental methods or independent research).

THE MINOR

Requirements. Five courses in psychology including the breadth requirement of two introduction and survey courses and the depth requirement of two more courses following one of these introduction and survey courses as described above for the major, plus one elective course numbered 100 or above.

SPECIAL OPPORTUNITIES

Neuroscience Concentration within B.S. Degree

Students completing a B.S. in psychology may elect to fulfill the requirements for a specialized concentration in neuroscience within the psychology major. Students in the neuroscience concentration will be expected to complete the following: the requirements for a B.S. major in psychology, the two introductory (core) course requirements (i.e., Psychology 91 and Psychology 135/Biology 154), and five elective courses to be selected from the listing of approved neuroscience courses. Independent Study (Psychology 191-194) is highly recommended for all participants in the program and may be counted toward completion of the elective requirements. Completion of the concentration would be indicated on the official transcript. For more information, students should contact the director of undergraduate studies in psychology or either of the program co-directors, Professor Warren Meck (psychology), e-mail: meck@psych.duke.edu or Professor Stephen Nowicki (biology), e-mail: snowicki@acpub.duke.edu, consult the neuroscience program world-wide-web homepage at http://unp.aas.duke.edu/, or obtain materials at the psychology undergraduate studies office, Rm. 245 Sociology/Psychology.

Relation to Other Departments and Programs

Many psychology courses count toward certificates or concentrations in other areas as well as neurosciences and human development, for example: the certificate in early childhood education studies, the neuroscience certificate, the animal behavior concentration in the biology major, the human development program, and the primatology concentration in the biological anthropology and anatomy major.
Independent Study

A program of individualized readings or an empirical research project may be carried out by arrangement with a faculty supervisor and enrollment in Psychology 191-194. Psychology 103 (practicum) serves as an excellent introduction to independent study. A written plan of the program must be approved by the supervisor and the director of undergraduate studies. At most only one of these independent study courses may count toward the area of concentration requirement, and only two may count toward the major.

Graduation with Distinction Program

The Graduation with Distinction Program is based on a special project, usually developed through participation in Independent Studies. The project may be a report of original empirical research, or it may be a critical analysis of a problem in the field both requiring a relevant literature review. The project is to be summarized in a carefully written thesis to be the subject of an oral examination. The opportunity to write a thesis and qualify for Graduation with Distinction is open to those majoring or minoring in Psychology. It is also open to students in Program II. Applicants must have an overall GPA of a 3.3 and a GPA in Psychology of 3.5 at the time of application to the program, and they must maintain this level of performance through graduation. Psychology minors and Program II must have 3.5 GPA in the major program of study.

An application to the Graduation with Distinction Program should be submitted no later than the registration period of the second semester of the junior year, with the expectation that at least two semesters will be devoted to the project.

Guidelines concerning Graduation with Distinction committees are as follows: 1) One member must be a core member of the Psychology faculty. 2) The second committee member must be either a core faculty member or hold a secondary appointment in Psychology. 3) The third committee member may be a graduate student, Psychology post doc or a faculty member who is not a member of the core or secondary appointment Psychology faculty.

Students who are accepted into the program should register for two of the courses listed 191 to 194 in two consecutive semesters. Ordinarily, the same mentor will serve in both semesters. Candidates for Graduation with Distinction also enroll in two half-credit seminars focusing on the conduct of psychological research, ethics in research, professional opportunities, and especially science writing in order to prepare a quality thesis. Near the end of the final semester, candidates should submit three copies of the thesis to their mentor. The mentor will then convene the faculty committee for an oral examination of the student and a decision as to whether the overall performance qualifies for Graduation with Distinction. An exceptional thesis combined with outstanding performance in Psychology may qualify a student for the Zener Award. Graduation with Distinction research projects will be displayed at the spring Psychology Research Poster Fair.

Public Policy Studies (PUBPOL)

Professor Kunicholm, Chair; Lecturer Rogerson, Director of Undergraduate Studies; Professors Agre (chemistry), Buchanan, Clotfelter, P. Cook, Darity, Dodge, Feaver (Political Science), Fleishman, Hamilton, Healy (environment), James, Jentleson, Ladd, McClain (political science), Munger (political science), Nechyba (economics), Mickiewicz, Price (political science), Schroeder (law), Sloan (economics), and Weiner (law); Associate Professors Conrad, Frankenberg, Korstad, Mayer, Pfaff, Peck, J. Vigdor, and Whetten; Assistant Professors Ananat, Bellemare, Charney, Gassman-Pines, Gibson-Davis, Goss, Kelley, Krishna, and D. Taylor; Professors of the Practice Brown, Glenday, Harris, Joseph, Kelly, Lethem, Raspberry, Shukla, Spengler, Stangl (statistics), T. Taylor, and Tifft; Associate Professor of the Practice F. Fernholz; Research Professors Cook-Deegan and Vaupel; Adjunct Professor Yaggy; Adjunct Associate Professors Moneta and Pickus; Visiting Professors Gillis and Oberschall; Visiting Associate Professors Krupp and Schanzer; Visiting Assistant Professors Sasser, Schewel, and Tham; Visiting Professors of
the Practice Busek, Johnson, and Pomerantz; Lecturer Blount; Visiting Lecturers Bliwise, T. Cook, Dancy, Elson, Emmett, R. Fernholz, Hahn, Healey, Kaufman, Martin-Staple, Moriarty-Lempke, Moses, Prak, Saponara, Sartor, Slawson-Kuniholm, So, Sud, and VanSant; Senior Research Scientists Vaupel, Rabiner, and Rosch; Research Scientists Berlin, Glennie, and Lansford; Research Scholar E. Vigdor

A major is available in this department.

Courses in public policy are open to all students providing that any prerequisites are met.


49S. First-Year Seminar. Topics may vary each semester offered. Instructor: Staff. One course.


55D. Introduction to Policy Analysis. SS Basic concepts of analytical thinking including quantitative methods for assessing the probabilities of outcomes and appraising policy alternatives. Illustrated by problems faced by busy decision makers in government, business, law, medicine. Instructor: Kelley, Mayer, Taylor, or Vigdor. One course. C-L: Health Policy, Global Health

80. Introductory and Basic Topics in Public Policy. SS Topics vary each semester. Does not count for public policy studies major. Instructor: Staff. One course.

80AS. Introductory and Basic Topics in Public Policy. SS Topics vary each semester. Does not count for public policy studies major. Instructor: Staff. Half course.

81FCS. Focus Program Introductory Special Topics in Public Policy. SS Introductory and basic topics in public policy. Topics vary each semester. Does not count for public policy studies major. Open only to students in the Focus Program. Instructor: Staff. One course.

82. Public Speaking: Policy Advocacy and Communication. W Theoretical and practical understanding of the elements of effective advocacy, especially as applied to policy issues. Focus on oral communication (both formal public speaking and interactive exchange), written exposition, and presentation skills. Emphasis on the human dimensions of the communication process, voice and body behavior, audience evaluation, focus, control and self-awareness. Identifies techniques for minimizing communication distraction, developing confidence in presentation situations, and analyzing informational requirements. Does not apply toward public policy studies major. Instructor: Frey. One course.

100S. Children and the Experience of Illness. SS One course. C-L: see Documentary Studies 100S; also C-L: Visual Studies 103S


102. Duke Fall Semester Program: Berlin. CCI, SS One course. C-L: see Political Science 100A; also C-L: International Comparative Studies


104. Political Philosophy of Globalization. CCI, CZ, EI, SS One course. C-L: see Philosophy 137; also C-L: Political Science 100C

104S. Medicine and the Vision of Documentary Photography. ALP One course. C-L: see Documentary Studies 104S; also C-L: Visual Studies 103BS

106. Animals and Ethics: Welfare, Rights, Utilitarianism, and Beyond. CCI, EI, SS One course. C-L: see Women's Studies 101

106S. Animals and Ethics: Welfare, Rights, Utilitarianism, and Beyond. CCI, EI, SS One course. C-L: see Women's Studies 101S

107. Science and Policy of Natural Catastrophes. NS, SS, STS One course. C-L: see Engineering 60; also C-L: Environment 161

109. Natural Catastrophes: Rebuilding from Ruins. NS, SS, STS One course. C-L: see Engineering 61; also C-L: Environment 162

109S. Children, Schools and Society. CCI, EI, SS, W One course. C-L: see Education 112S; also C-L: Early Childhood Education, Ethics, Children in Contemporary Society

111. Introduction to the United States Health Care System. SS Overview of the key health policy issues in the United States. Topics include: (1) sources of morbidity and mortality; (2) access to health care; (3) financing of health care including an overview of how health insurance works, Medicare and Medicaid and why there are uninsured persons and to what extent; (4) quality of health care; (5) the role of innovation in both treating disease and influencing costs; (6) mental health, including why drug and alcohol treatment is generally considered to be a mental health service; (7) the role of non-profit versus for-profit ownership of health care facilities and to what extent; (8) long term care; and (9) the impact of social phenomenon such as income inequality, social class and culture on health care. Instructor: Taylor. One course. C-L: Health Policy 111, Health Policy

113. The 1960S: History and Public Policy. CZ, R, SS One course. C-L: see History 113A


116. Policy Choice as Value Conflict. EI, SS Theoretical and practical problems in decision making in relation to conflicts of value and of interest. The manifestation of norms deriving from professional ethics, ideology, law, and other sources in such policy issues as welfare, environmental management, and national defense. Prerequisites: Public Policy Studies 55D. Instructor: Buchanan, Charney, Korstad, Peck, or Pickus. One course. C-L: Ethics

116D. Policy Choice as Value Conflict. EI, SS Same as Public Policy Studies 116 except instruction is provided in two lectures and one small discussion meeting each week. Prerequisite: Public Policy Studies 55D. Instructor: Buchanan, Charney, Korstad, Peck, or Pickus. One course.

117. Media and National Security. SS, STS The influence of political leadership, organizational factors in media structures, and the roles and norms of journalists. Change in the definition of security and rationales for military intervention, especially since the end of the Cold War. Parallel changes in media technology introducing the capacity for unmediated, live diffusion of images and tension, conflict, and emergencies. The increasingly important relationship between information and security as seen in controversies surrounding the coverage of terrorism. Instructor: Mickiewicz. One course. C-L: Visual Studies 125A, Policy Journalism and Media

118S. Television Journalism. SS Theories and concepts of television broadcasting; writing and editing for electronic media; issues of production. Consent of instructor required. Instructor: Staff. One course. C-L: Visual Studies 125BS, Policy Journalism and Media Studies, Information Science and Information Studies
119S. Magazine Journalism. SS, W Storytelling techniques of magazine journalism; historical and contemporary writing for magazines; and visual impact in print. Students develop experience in different kinds of magazine writing, collaborate on a magazine produced by the class, contribute to campus publications. Consent of instructor required. Instructor: Bliwise. One course. C-L: Visual Studies 125CS, Policy Journalism and Media Studies

120S. News Writing and Reporting. R, SS, W Seminar on reporting and writing news and feature stories for newspapers. Students required to produce actual news stories every week, based on original reporting and writing, including interviews, use of the Internet and electronic databases, public records, and written publications. Written assignments critiqued in class; final project. Consent of instructor required. Instructor: Rogerson. One course. C-L: Visual Studies 125ES, Policy Journalism and Media Studies, Film/Video/Digital

121S. Reporting Public Policy. SS, W Covering government, politics, and legislation in an adversarial climate. The journalistic line between skepticism and cynicism, between analysis and editorializing; media conflicts of interest from corporate ownership and the impact of ratings and bottom-line considerations; standards of fairness, privacy and competition. Instructor: Tifft. One course. C-L: Policy Journalism and Media

122. Who Owns the Press. SS How media ownership has evolved from its political beginnings to family businesses, newspaper chains, international press barons, and cross-owning corporations; how recent consolidation of ownership has affected how news is selected, gathered, and disseminated; and what effect these developments have had on democratic institutions and what people know. Historical and analytical readings. Instructor: Tifft. One course. C-L: Markets and Management Studies, Policy Journalism and Media

123S. Watchdogs and Muckrakers: Investigative Journalism and Public Policy. SS, W Historical as well as current examples of how the media have exposed and explained issues vital to the public; journalistic tools and hurdles such as anonymous sourcing, hidden cameras, disinformation, the Freedom of Information Act, and computer-assisted reporting. Instructor: Tifft. One course. C-L: Policy Journalism and Media, Documentary Studies

124. Children in Contemporary Society. R, SS One course. C-L: see Children in Contemporary Society 150

125. News as Moral Battleground. EI, SS, W The difficulty of determining which value system to apply and how to apply it to such issues as covering the private life of politicians, breaking the law in pursuit of a story, and accommodating the desires of an audience that increasingly demands to be entertained as much as informed. Instructor: Tifft. One course. C-L: Policy Journalism and Media Studies, Documentary Studies

126. Information, Policy, and Ethics. EI, SS, STS The development of the Internet as a medium of communication and the policies and regulations that have emerged both internationally and nationally (in the United States). The political aspects of the access to information on the Internet and the more controversial issue of Internet content. Includes Internet monitoring project designed to encourage in-depth analysis in order to place the Internet in its historical context; contemporary political and social impacts of the Internet. Instructor: Rogerson. One course. C-L: Policy Journalism and Media, Information Science and Information Studies, Ethics

127S. The Press and the Public Interest. SS The press as it serves (or fails to serve) the interests of the people, the policymakers and opinion leaders and the various levels of government. The history of journalistic practice and expectation; the media's role in a series of more recent public controversies. Instructor: Raspberry. One course. C-L: African and African American Studies 126S, Policy Journalism and Media

128D. Microeconomic Policy Tools. SS Development and application of analytical economic tools in a policy environment. Emphasis on application of economic methods in a variety of policy settings and developing testable hypotheses that might be used to guide economic policy. Analytical topics include willingness to pay, derived demand, multi-
market interactions, comparative advantage, investment analysis, and decision making under uncertainty. Applications include tax analysis, including incidence, effective protection, shadow pricing, introduction to government expenditures, labor market policy, examples of regulation and pricing externalities. Prerequisite: Economics 51 or Economics 55. Instructor: Staff. One course.

The most commonly used indices to measure United States health disparities by race/ethnicity; origins and evolution of racial/ethnic categories in the United States Census; role of poverty, racial residential segregation, and inadequate health care in explaining racial/ethnic health disparities; and the promise and limitations of academic-community partnerships and public policy initiatives designed to reduce and ultimately eliminate those health disparities. Instructor: James. One course. C-L: African and African American Studies 130

The most commonly used indices to measure United States health disparities by race/ethnicity; origins and evolution of racial/ethnic categories in the United States Census; role of poverty, racial residential segregation, and inadequate health care in explaining racial/ethnic health disparities; and the promise and limitations of academic-community partnerships and public policy initiatives designed to reduce and ultimately eliminate those health disparities. Instructor: James. One course. C-L: African and African American Studies 130

131. Law, Culture, and the Russian Legal Tradition. CCI, CZ, EI, SS
One course. C-L: see Russian 157; also C-L: International Comparative Studies

135S. Law and Globalization in Emerging Markets. CCI, SS
One course. C-L: see Russian 139S; also C-L: International Comparative Studies 161E

136. Civic Participation and Community Leadership. EI, SS
Explores ways in which value conflicts in communities affect civic and political participation, as well as policy design. Examines a series of questions about reinventing democracy at the grassroots. Challenges students to develop a framework of problem solving approaches and to consider diverse ways to exercise leadership in the face of competing interests. Instructor: Blount. One course. C-L: Ethics

Capstone seminar for students completing community-based research (CBR) projects through Service Opportunities in Leadership Program. Involves critical reflection on summer projects, exploration of leadership, politics, and policy design concepts. Exploration, drawing upon students' experiences, questions, and insights as a starting point, of how lives of commitment to the common good are formed and sustained. Consent of instructor required. Instructor: Blount. One course.

140S. Women as Leaders. SS
Intellectual and experiential exploration of the theory and practice of leadership, with an emphasis on the special role gender plays. Topics include: authority, conflict, power, and an assessment of each student's potential for leadership. Small group work required. Instructor: Alden. One course. C-L: Women's Studies

142S. Intellectual Property: Law, Policy, and Practice. EI, SS, STS
Survey and analysis of American intellectual property law and policy. Examines the impact of intangible assets—copyrights, trademarks, patents, and related rights and interests—on artistic expression, communication, and innovation. Emphasis on media-oriented issues including film, television, music, computer programs, and digital content, with special focus on the tension between the impulse to protect property interests and the need for an expansive public domain. Extensive readings in both case law and policy commentary. Instructor: Frey. One course.

144S. Enterprising Leadership. EI, SS
How leaders and their associates become social innovators in a variety of situations. Focus on enterprises that have strong social and commercial values. Social innovation theories and models, evaluation of social innovation situations, social innovator competencies, and personal values and traits. Ethics, character, and citizenship as important themes. Includes a personal social innovator plan, campus and community leadership projects, case discussions, and a ropes course experience. Not open to seniors. Consent of instructor required. Instructor: Brown. One course. C-L: Markets and Management Studies, Ethics

145. Leadership, Policy, and Change. EI, SS
Ethical and practical issues of social and organizational change, including conflicts about power and authority, violence, gender,
race, fairness, wealth and work. How imagination, fictional and historical narratives, anger, friendship, and teaching skills can be useful in working for change. Problems of group dynamics, integrity, responsibility, and self-understanding faced by those supporting or opposing changes. Instructor: Payne or Schewel. One course. C-L: Ethics

146. Leadership, Development, and Organizations. EI, SS Effective leadership processes in different types of organizations and situations. Focus on ethical leadership behavior. Topics range from ethics, citizenship, and the meaning of a great society to "defining moments" of individual ethical behavior in leadership situations. Course includes an important service learning project in Durham, along with reflection on the ethical leadership experience. Instructor: Brown. One course. C-L: Markets and Management Studies

147D. Environmental Politics and Policies in the Developing World (B). CCI, EI, SS, STS One course. C-L: see Political Science 147D; also C-L: International Comparative Studies, Ethics

149. United States Environmental Policy. EI, SS, STS, W One course. C-L: see Environment 149; also C-L: Health Policy


150S. Policy, Philanthropy, and the Arts. SS Democratic and aesthetic values in relation to past and present patterns of public, corporate, and philanthropic support for the arts. The uses of art criticism and political theory in evaluating subsidies, grants, tax incentives, and censorship. Consent of instructor required. Instructor: Staff. One course. C-L: Markets and Management Studies


153S. Leadership, Ethics, and Drama. ALP, CCI, EI, SS, W Includes attending at least two plays or operas per week; study of the texts of several of these works, along with essays by philosophers and political theorists; regular discussions and weekly papers. Topics include dilemmas of individual choice and public choice, conflicts, conflicts of race and ethnicity, gender and sexuality, fairness and social injustice, loyalty and betrayal, and the moral and psychological dimensions of character. Instructor: Staff. One course.


155. Global Health Ethics: Interdisciplinary Perspectives. EI, SS One course. C-L: see Global Health Certificate 151; also C-L: Global Health

156. Health Economics. SS, W One course. C-L: see Economics 156; also C-L: Health Policy


158S. Small Town USA: Local Collaborations. ALP, CCI, R One course. C-L: see Documentary Studies 158S; also C-L: Visual Arts 158S, Visual Studies 103WS

159S. State and Local Public Policy. SS How state and local governments pay for public services. Financing education and transportation programs, the use of municipal bonds for
capital projects, the design of intergovernmental aid programs, and state and local tax policy. Consent of instructor required. Instructor: Clotfelter or Ladd. One course.

160S. Long Term Care Policy. SS The aging of the United States population, escalating expenditures, uneven managed care penetration in the Medicare and Medicaid markets, and unresolved public/private relationships; federal policy debates on social security and Medicare, state and local service strategies, and reform agenda for the future. Instructor: Taylor. One course.

161. Summer Internship. Internship course in Washington, DC, or Research Triangle Park, NC only. Counts toward thirty-four course credit requirement and continuation, but not for Public Policy major elective credit. Requires a substantive paper (or papers) containing significant analysis and interpretation. Pass/Fail grading only. Consent of instructor required. Prerequisite: Economics 55, Public Policy 55D, 114, 116, 128/equivalent, Statistics 101, and approval from Internship Coordinator. Instructor: Staff. Half course.

162. Human Rights in Theory and Practice. CCI, CZ, EI, SS One course. C-L: see Political Science 162; also C-L: Philosophy 162, Documentary Studies, Ethics, Global Health

163S. Telecommunications Policy and Regulation. SS, STS Broadcast policies, the rise of cable television, spectrum allocation and authorization, and developments in common carrier telecommunications. Instructor: Prak. One course. C-L: Policy Journalism and Media, Film/Video/Digital, Information Science and Information Studies

164S. Science and Technology Policy. SS, STS One course. C-L: see Environment 146S

165. American International Economic Policy. CCI, SS, STS, W One course. C-L: see Economics 165; also C-L: Markets and Management Studies

166. The Insurgent South: Movements for Social Change Since the Civil War. CZ, SS Social movements in the South from Reconstruction to the present. Includes Populism, Women's Suffrage, the Interracial Movement, labor, civil rights, and post-1960s conservatism. Attention to public policy positions espoused by social movement organizations and activists. Lecture/discussion. Weekly writing assignments. Instructor: Korstad. One course. C-L: History 166A

169A. United States Foreign Policy I: From World War II to Vietnam War. CCI, CZ, EI, SS Basic assumptions about international interests and purposes of United States foreign policy and the means by which they have been pursued from the origins of the Cold War to the war in Vietnam. Focus on crucial operational premises in the 'defining moments' of United States diplomatic history. Policy-making models, politics of foreign policy, global environment within which United States policy is made, and uses of history. Special attention to the origins of the Cold War and the Vietnam War. Instructor: Kuniholm. One course. C-L: History 167A

169B. United States Foreign Policy II: From Vietnam War to the Present. CCI, CZ, SS Examination of basic assumptions about international interests and purposes of United States foreign policy and the means by which they have been pursued from the end of the Vietnam War to the Clinton administration. Focus on crucial operational premises in the "defining moments" of United States diplomatic history. Various policy-making models, politics of foreign policy, global environment within which United States policy is made, and uses of history. Special attention to the Cold War, the Arab-Israeli wars, and the Gulf War. Continuation of Public Policy Studies 169A (recommended but not required). Instructor: Kuniholm. One course. C-L: History 167B

170S. Producing for the Theater. ALP One course. C-L: see Theater Studies 163S

171. Contemporary Documentary Film: Filmmakers and the Full Frame Documentary Film Festival. ALP, CCI, STS One course. C-L: see Film/Video/Digital 103; also C-L: Documentary Studies 129, Political Science 156A
172. Conflict, Conflict Resolution, and Film. ALP, CCI, SS One course. C-L: see Film/Video/Digital 108; also C-L: English 186A, Political Science 156, Literature 120C, Visual Studies 117H

173S. Race and Equity. SS Major historic efforts of the republic to establish legal equality for former slaves and their descendants—the Emancipation Proclamation, the Thirteenth, Fourteenth, and Fifteenth Amendments to the Constitution. Modern-day controversies over race and equality. Efforts of Lyndon Johnson and Richard Nixon under the rubric of "affirmative action." Fair-employment approaches ranging from "casting a wider net" to "goals and timetables" to overt or tacit quotas as well as voter-equality schemes from at-large elections to racial "gerrymandering" to cumulative voting. Desegregation and integration as competing ideals; actual and proposed remedies for unfairness. Instructor: Raspberry. One course. C-L: African and African American Studies 177S, Policy Journalism and Media

174. Separation and Inclusion. SS The history of the competing theories of separation and inclusion; focus on recent fragmentizing movements, including aspects of multiculturalism, feminism, and gay rights activism. Whether America is becoming disunited and, if so, whether the change is a temporary phase or a permanent transformation. Instructor: Raspberry. One course. C-L: African and African American Studies 179, Policy Journalism and Media

175. Distributive Justice (C-N). EI, SS One course. C-L: see Political Science 175B; also C-L: Ethics

176S. American Communities: A Photographic Approach. ALP, CCI, SS One course. C-L: see Documentary Studies 176S; also C-L: Visual Arts 118S, Visual Studies 103XS, Film and Video, Policy Journalism and Media Studies

177S. Advanced Documentary Photography. ALP, SS One course. C-L: see Documentary Studies 177S; also C-L: Visual Arts 119S, Visual Studies 103YS, Film and Video, Policy Journalism and Media Studies

178. Comparative Health Care Systems (B). CCI, EI, SS The interaction of historical, political, economic, cultural, legal/ethical, and sociological factors in the organization and operation of health care systems. Emphasis on how cultural values penetrate the social institutions (politics, economics) that determine health care policies and their reception by societal members. Effects of social and technological change on health care systems, comparing their effects across societies with differing histories, cultural values, and economic systems. Major focus on United States, England, Sweden, and other Western societies. Instructor: Staff. One course. C-L: Sociology 171, Political Science 188, Canadian Studies, International Comparative Studies, Health Policy, Ethics, Global Health

180. Introduction to Leadership, Ethics, and Public Policy. EI, SS Robertson Scholars Colloquium, exploring facets of development, ethics, and leadership. Introduction to intellectual theories and models of making meaning out of college experiences and the Robertson Scholars Program’s values. Focus on ethics, leadership, and one public policy issue. Interactive approach including readings, projects, speakers, and writing. Pass/fail grading. Open only to Robertson Scholars. Instructor consent required. Instructor: Brown. Half course.

182S. Intermediate Documentary Filmmaking. One course. C-L: see Film/Video/Digital 152S; also C-L: Documentary Studies 150S, Visual Studies 103VS, Information Science and Information Studies

183AS. Social Science and Policy Research I. IR, SS Theory and research methods in social science applied to solutions to contemporary social problems. Includes direct mentoring and participation in faculty research on topics such as drug abuse, racial socialization, teenage aggression, school failure, and child abuse. Preparation for independent research. The first part of a two-course sequence. Prerequisite: Coursework in research methods in the social sciences. Consent of instructor required. Instructor: Dodge. One course. C-L: Psychology 160AS
183BS. Social Science and Policy Research II. R, SS Continuation of 183AS. Research and group seminar to integrate learning. Prerequisite: Public Policy Studies 183AS or Psychology 160AS or consent of instructor. Instructor: Dodge. One course. C-L: Psychology 160BS

185D. Globalization and Public Policy. R, SS How the various aspects of globalization affect, and are affected by public policy at the international, national and local levels. Development of an analytic framework for thinking about globalization and its core concepts, major institutions and political dynamics; survey of a range of major policy areas affected by globalization; focus on a policy area of particular interest. Instructor: Jentleson. One course. C-L: Political Science 149D, International Comparative Studies

186. Public Finance. QS, SS One course. C-L: see Economics 187

189. Business and Government. QS, SS One course. C-L: see Economics 189; also C-L: Markets and Management Studies

190. Internship. For students working in a public agency, political campaign, or other policy-oriented group under the supervision of a faculty member. Prior consent of assistant director of internships, placement, and alumni and director of undergraduate studies required. Requires a substantive paper (or papers) containing significant analysis and interpretation. Pass/fail grading only. Prerequisite: Economics 55, Public Policy 55D, 114, 116, 128/equivalent, Statistics 101, and approval from Internship Coordinator. Instructor: Staff. One course.

191. Independent Study. Supervised reading in a field of special interest under the sponsorship of a faculty member. Requires a substantive paper containing significant analysis and interpretation. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


195. Selected Public Policy Topics. SS Instructor: Staff. One course.

195AS. Selected Public Policy Topics. SS Seminar version of Public Policy Studies 195. Instructor: Staff. Half course.

195S. Selected Public Policy Topics. SS Seminar version of Public Policy Studies 195. Instructor: Staff. One course.

195T. Selected Public Policy Topics. SS Tutorial version of Public Policy Studies 195, 196. Offered in the Leadership in the Arts Program in New York City. Topics vary by section. Instructor: Staff. One course.

196. Selected Topics. SS Instructor: Staff. One course.

196S. Selected Topics. SS Seminar version of Public Policy Studies 196. Instructor: Staff. One course.

198S. Honors Seminar. R, SS, W Special research topics. Consent of the honors seminar instructor and director of undergraduate studies required. Instructor: Staff. One course.

199S. Honors Seminar. R, SS, W Continuation of Public Policy Studies 198S. Consent of the honors seminar instructor and director of undergraduate studies required. Prerequisite: Public Policy Studies 198S. Instructor: Staff. One course.
For Seniors and Graduates

202. Policy Journalism and Media Studies Capstone Course. R, SS Capstone course for the Policy Journalism and Media Studies certificate. Course to be taken after the student completes an internship in a media organization. Course designed to integrate student's practical experience with the more conceptual and theoretical knowledge gleaned from the classroom. Students meet in formal course setting to discuss what they have learned, present examples of the work they have accomplished culminating in a research paper. Course requirements include writing a major research paper that synthesizes ideas and concepts learned in coursework with the internship's practical experience and a class presentation about the student's internship. Instructor: Rogerson. One course. C-L: Policy Journalism and Media Studies


218. Macroeconomic Policy and International Finance. SS Survey of macroeconomic theory and analysis of policies designed to reduce unemployment, stimulate economic growth, and stabilize prices. Conventional monetary and fiscal instruments, employment policies, and new policies designed to combat inflation. Instructor: Staff. One course. C-L: Economics 218

221. Media and Democracy. CCI, SS Examines the relationship between mass media and democracy in the United States, other developed democracies, and societies in transition. Seeks to explain how the media cover politics and public policy, examining the nature of media institutions, the economics of news production and consumption, and the strategic interplay of politicians, journalists, editors, and other actors who influence the content of news. Instructor: Mickiewicz. One course. C-L: Visual Studies 251A, Policy Journalism and Media, Information Science and Information Studies

229S. Poverty, Inequality, and Health. EI, R, SS Impact of poverty and socioeconomic inequality on the health of individuals and populations. Attention given to both United States and non-United States populations. Topics include the conceptualization and measurement of poverty and socioeconomic inequality; socioeconomic gradients in health; globalization and health; socioeconomic deprivation across the life-course and health in adulthood; and public policy responses in the United States and elsewhere to growing health inequities in the age of globalization. Prerequisite: An introductory course in statistics. Seniors and graduate students only. Instructor: James. One course. C-L: African and African American Studies 229S

240. Responsible Genomics. EI, R, SS Survey of ethical, social, economic, and legal issues in genomics. Introduction to ethical reasoning and examination of selected issues calling for such analysis, including: special procedures for research involving human participants, (2) respect for privacy and confidentiality of genetic information; (3) historical and political background of health research funding, and (4) public-private research interactions such as intellectual property and conflict of interest. Instructor: Cook-Deegan. One course.

243. Media in Post-Communist Societies. CCI, R, SS, STS Analysis of media in and after major change in regimes. Uses post-Soviet area as subjects of study of process of change; elites' competition; public's choices; beliefs about and rigorous study of media effects. Critical importance of elections and media and the development of a media market; and the dilemmas of dealing with past officials, activists, and supporters of the previous regimes. Instructor: Mickiewicz. One course. C-L: Political Science 276, Russian 246, International Comparative Studies, Information Science and Information Studies, Policy Journalism and Media Studies

251S. Regulation of Vice and Substance Abuse. R, SS, W The traditional vices of drinking, smoking, gambling, and the recreational use of drugs. Evaluation of government policy on these activities. The intellectual framework for evaluation drawn from economics,
although readings refer to law, psychology, philosophy, and statistics. Instructor: Cook. One course. C-L: Economics 251S, Health Policy


256. Global Health Ethics: Interdisciplinary Perspectives. EI, SS One course. C-L: see Global Health Certificate 251; also C-L: Global Health

257S. United States Policy in the Middle East. CCI, SS From World War II to the present with a focus on current policy options. Instructor: Kuniholm. One course. C-L: History 296S, International Comparative Studies

258S. International Environmental Regimes. EI, SS, STS One course. C-L: see Political Science 271S; also C-L: International Comparative Studies 201CS

261. Evaluation of Public Expenditures. SS Basic development of cost benefit analysis from alternative points of view, for example, equity, debt, and economy as a whole. Techniques include: construction of cash flows, alternative investment rules, inflation adjustments, optimal timing and duration of projects, private and social pricing. Adjustments for economic distortions, foreign exchange adjustments, risk and income distribution examined in the context of present value rules. Examples and cases from both developed and developing countries. Instructor: Conrad. One course. C-L: Economics 261, Environment 272, Health Policy

262S. Seminar in Applied Project Evaluation. R, SS Initiate, develop, and perform a project evaluation. Range of topics include measuring the social cost of deforestation, the B1 Bomber, a child nutrition program, the local arts program. Prerequisite: Economics 285 or Public Policy Studies 261. Instructor: Conrad. One course. C-L: Economics 262S

263S. Public Health Research Methods and Issues. CCI, R, SS Focus on prevention of diseases and health problems; funding, policy, and management decision making. Overview of public health interventions and outcomes in United States, Europe, and less industrialized nations. Emphasis on understanding the social construction of race and ethnicity and the impact of socioeconomic variables such as race, ethnicity, gender, income and education on health. Public health perspective applied to such topics as: HIV/AIDS; teen pregnancy; cocaine use during pregnancy; infant mortality and low birth weight; violence; major causes of mortality in less industrialized countries; and role of public health in state and national health reform. Instructor: Whetten. One course. C-L: Health Policy, Global Health

264. Advanced Topics in Public Policy. SS Selected topics. Instructor: Staff. One course.

264S. Advanced Topics in Public Policy. SS Selected topics. Seminar version of Public Policy Studies 264. Instructor: Staff. One course. C-L: Policy Journalism and Media

268. Media Policy and Economics. R, SS, STS Use of economics to examine the production and consumption of information in communications markets and impact of media on society. Topics include regulation of television/radio/newspapers, intellectual property and Internet, content diversity, and news markets. Instructor: Hamilton. One course. C-L: Economics 235, Policy Journalism and Media

269S. The Regulatory Process. R, SS, STS Study of theories in economics, political science, and law to examine the structure, conduct, and performance of U.S. regulatory agencies. Emphasis on why decisions are delegated to agencies, the degree to which
regulators behave strategically, and the impact of regulatory actions on society. Focus on political and economic roots of scientific and technological debates in regulatory policy. Required research paper on origins and effectiveness of a particular regulation. Instructor: Hamilton. One course. C-L: Political Science 268S

270S. History of Poverty in the United States. CCI, CZ, SS One course. C-L: see History 211S

271S. Schools and Social Policy. R, SS Overview and selected current policy issues related to K-12 education. Includes small-group research projects that require data analysis, literature searches, and interviews with education policy makers. Consent of instructor required. Instructor: Ladd. One course. C-L: Children in Contemporary Society

272. Resource and Environmental Economics. SS One course. C-L: see Environment 270; also C-L: Economics 270, Health Policy

274. Environmental Politics. SS One course. C-L: see Environment 274; also C-L: Health Policy

278S. Race and American Politics. CCI, SS One course. C-L: see Political Science 278S; also C-L: African and African American Studies 278S

280S. Philanthropy, Voluntarism, and Not-for-Profit Management. EI, SS An examination of the role and functioning of the not-for-profit sector in relation to both the public sector and the private for-profit sector in dealing with significant social problems. Also taught as Law 585. Instructor: Fleishman. One course.

283S. Congressional Policy-Making. SS One course. C-L: see Political Science 283S

285. Land Use Principles and Policy. SS One course. C-L: see Environment 285


290S. Glasgow Seminar in Public Policy. CCI, R, SS Analysis of the British political system and important public policy problems in Britain including: privatization, Britain and the European community, and economic and social policy. (Taught in Scotland.) Prerequisite: Public Policy Studies 55D, two of the core courses (Public Policy Studies 114, 116, 128 or equivalent, or Statistics 101), and consent of director Instructor: Staff. One course.

297. Marine Policy. SS, STS One course. C-L: see Environment 276; also C-L: Political Science 264, Marine Sciences

THE MAJOR

The public policy studies major is an interdisciplinary social science program designed to provide students with the skills, analytical perspectives, and substantive knowledge needed to deal effectively with major contemporary social problems. The course of study familiarizes the student with the kind of contribution each of several disciplines (political science, economics, social psychology, applied mathematics, history, and ethics) can make to one's understanding of a broad range of contemporary issues such as environmental policy, child and family policy, health policy, and international issues such as trade and conflict resolution. Opportunities are provided, both in the classroom and through field experiences, for students to integrate this material and apply it to the analysis of specific public policy issues.
Students majoring in public policy participate in a variety of learning experiences including seminars, lecture and discussion classes, individual study, policy workshops, and a required internship (see below). In addition, students are urged to participate actively in programs sponsored by the Sanford Institute of Public Policy to supplement material covered in class.

**Prerequisites.** Economics 51 or 55

**Major Requirements.** Public Policy Studies 55D, 114, 116; 128, though students who have taken Economics 55 may substitute one course in economic policy within the Public Policy Department for Public Policy 128; one history course; Statistics 101; plus four Public Policy Studies 100/200-level elective courses, one of which must be a 200-level course. The required history course must include a public policy component. History classes taught by Public Policy faculty or other History Department classes designated by the Public Policy director of undergraduate studies may be used to satisfy this requirement. No more than two transfer (including study abroad) credits may be counted toward the major requirements. Note that Public Policy Studies 290S Glasgow Seminar in Public Policy is classified as a Duke course rather than a transfer course. A satisfactory policy-oriented internship, approved by the department, and enrollment in Public Policy Studies 103, a non-credit, pass/fail internship course, is required. Public Policy Studies 161 or 190 may substitute for 103.

**INTERNSHIP PROGRAM**

The Public Policy Studies internship program provides students with an opportunity to develop a basic understanding of one or more policy areas, to apply that understanding in an internship, and to return to the classroom to build on that knowledge and experience. A *Handbook for Public Policy Studies Undergraduate Internships*, outlining all specific internship requirements, is available through the department.

Prior to beginning the internship, students must take all of the following courses: Economics 51 or 55, Public Policy Studies 55D, 114, 116, 128/equivalent, and Statistics 101. All of these courses are listed as prerequisites for Public Policy Studies 103, 161, and 190. Since most students will conduct their internships in the summer between their junior and senior years, this means all these core courses and prerequisites should be completed by the end of the junior year. Students failing to complete these prerequisites by the end of their junior year will have to complete a term-time internship during their senior year or (if they graduate late) in the summer after the senior year. The internship application process takes place during the fall and spring semesters prior to the internship under the guidance, assistance, and approval of the Public Policy Studies Internship Office. Students whose internships are not preapproved by the Internship Office run the risk of not receiving credit for their internships. Upon completion of the internship, students are required to submit an analytical memo and a self-evaluation form.

Students must register for one of three internship classes in order to complete the internship requirement. Most students will enroll in Public Policy Studies 103, a non-credit class graded on a pass/fail basis. Students in Washington, DC or the Research Triangle Park area may enroll in Public Policy Studies 161 during the summer. This class, which supplements the internship experience with lectures and instruction, is graded on a pass/fail basis and carries one-half course credit. Students in Public Policy Studies 161 are eligible for a departmental stipend, unless they receive compensation from their internship employers. Students may also structure an internship in which they enroll in Public Policy Studies 190 and work under the supervision of a faculty member. Public Policy Studies 190 is a one-credit course, is graded on a pass/fail basis, and does not involve a stipend.

Public Policy Studies majors are strongly encouraged to take advanced follow-up course work that builds upon the knowledge gained from their internship experiences.

**Departmental Graduation With Distinction**

For graduation with departmental distinction, students are required to complete an honors seminar or independent study project and produce an honors research project. To be
awarded Distinction in Public Policy, a student must receive no less than an A- on the research paper as determined by the honors program director and to have at least a 3.40 average in the following subset of Public Policy Studies courses: Public Policy Studies 55D, 114, 116, 128 or substitute. If a student is judged to have done a clearly superior research project, as evidenced by a grade of A or A+ as determined by the honors program director, and if the 3.40 or higher average in the above subset of courses is attained, Highest Distinction in Public Policy is awarded. The proposed program of research must be approved in advance by the director of undergraduate studies. More details on the honors program are provided in the Handbook for Public Policy Studies Majors, available from the office of the Director of Undergraduate Studies.

**Religion (RELIGION)**

Associate Professor Jaffe, Chair; Professor C. Meyers, Director of Undergraduate Studies; Professors Bland, Chaves, Clark, Hillerbrand, Kort, Lawrence, E. Meyers, Peters, and Van Rompay; Associate Professors Goodacre, Nickerson and Prasad; Associate Research Professor Moosa; Instructor Need; Affiliated faculty; Professors Aers (English), Beckwith (English), Ehrman (University of North Carolina at Chapel Hill), Ewing (cultural anthropology), and Surin (literature); Associate Professor Hacohen (history); Adjunct Assistant Professor Thompson (documentary studies)

A major or minor is available in this department.

Study in the Department of Religion arises from the recognition that religion, although it takes many forms, is a constitutive element of human existence individually and collectively. The curriculum is organized so that courses at the 40 level provide an introduction to the major religious traditions, those with significant representation and influence throughout the world. Courses at the 100 level include those which focus on specific traditions, texts, and contexts and those which deal with religious data from a theoretical perspective.

All introductory courses and courses at the 100 level, with the exception of those courses specially designated, are open to all undergraduates. Courses at the 200 level are open to upperclass students with the consent of the instructor.

1. **Biblical Hebrew I. FL** (Divinity School course open to undergraduates with consent of instructor.) Elements of phonology, morphology, and syntax. Exercises in reading and writing Hebrew. Course credit contingent upon the successful completion of Religion 2. Instructor: Staff. One course. C-L: Jewish Studies 1A

2. **Biblical Hebrew II. FL** (Divinity School course open to undergraduates with consent of instructor.) Second half of Religion 1. Study of the weak verb; exegetical treatment of the Book of Jonah. Instructor: Staff. One course. C-L: Jewish Studies 2A

40. **Judaism. CCI, CZ** Introduction to Judaic civilization from its origins to modern times. Instructor: Bland, E. Meyers, or staff. One course. C-L: Jewish Studies 40, Women's Studies

41. **Christianity. CCI, CZ, EI** Introduction to Christian doctrine, ritual, social organization and ethics in the past and present. Instructor: Hillerbrand, Moosa, Van Rompay, or staff. One course.

42. **Islam. CCI, CZ, EI** Introduction to Islamic theology, practice, social institutions, and ethics in the past and present. Instructor: Lawrence, Moosa, or staff. One course.

43. **Hinduism. CCI, CZ, EI** An exploration of the beliefs, ethics, everyday and ceremonial practices, philosophies, mythologies, and movements that are part of the aggregately-named religion of Hinduism. Instructor: Prasad or staff. One course.

44. **Buddhism. CCI, CZ, EI** Introduction to Buddhist texts, beliefs, rituals, and ethics in the past and present. Instructor: Jaffe or staff. One course.

45. **Religions of Asia. CCI, CZ, EI** Problems and methods in the study of religion, followed by a survey of the historical development, beliefs, practices, ethics, and contemporary...
significance of the Islamic religion and religions of south and east Asia. Instructor: Nickerson or staff. One course. C-L: International Comparative Studies 90A

48. Japanese Religions: Buddhas, Kanmi, and other Deities. CCI, CZ, EI The various strands of Japanese religious life from prehistoric times until the present. Kami worship; primary denominations of Japanese Buddhism; Japanese Christianity; Confucianism; and the New Religious. The ethical, social, and political implications of these strands. Instructor: Jaffe. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.


72S. Seminar for First- and Second-Year Students. CZ Topics and instructors to be announced. Instructor: Staff. One course.

80. Approaches to Religion. CCI, CZ Introduction to influential methods and approaches in the academic study of religion, seeking to understand, examine, and evaluate influential conceptions of religion advanced by representatives of these methods. Instructor: Staff. One course.

85. World Religions in American Life. CCI, CZ Introduction to world religions through exploration of their manifestations in the United States, with the goal of understanding both religion and American life more accurately. Instructor: Staff. One course.

100. The Old Testament/Hebrew Bible. CCI, CZ, EI Historical, literary, ethical, and theological investigations of the ancient Near Eastern context of Israelite religion and culture. Instructor: C. Meyers, E. Meyers, or Peters. One course. C-L: Jewish Studies 100, Ethics

102. The New Testament. CCI, CZ, EI Examination of the major books of the New Testament, covering their contents, ethical implications, historical and social setting, authorship, date, and theology. Instructor: Goodacre or staff. One course.

107A. Taoism and Chinese Religion. CCI, CZ, EI Introduction to Taoism, its texts, practices, and ethical implications in history and modern times in mainland China and Taiwan. Instructor: Nickerson. One course. C-L: International Comparative Studies 120A, Ethics

108. The Life and Letters of Paul. CCI, CZ, EI Paul's biography and character, the social and physical circumstances of his work, his thought, and its relationship to ancient Jewish and Hellenistic ethics and beliefs. Instructor: Goodacre or staff. One course.

109. Women in the Biblical Tradition: Image and Role. CCI, CZ, EI Women in ancient Israel, early Christianity, and early Judaism in their contexts in the Near Eastern and Greco-Roman worlds, with attention to the relation between textual depictions and social reality and to the ethical issues raised by the continuing authority of biblical texts for matters of gender. Sources include the Bible, images from art, and archaeological remains. Instructor: C. Meyers or staff. One course. C-L: Jewish Studies 103, Women's Studies

110. Religion in China. CCI, CZ Chinese religious traditions (for example, Taoist, Buddhist, Confucian, and popular) and their interrelationships from the Neolithic to the present. Mutual influences between religion and Chinese social, cultural, and political history. Instructor: Nickerson. One course. C-L: History 110A

111. The Historical Jesus. CCI, CZ, EI An investigation of what can be known about Jesus of Nazareth, his teaching about the kingdom of God and ethical behavior, his symbolic acts, and his cures. Principal attention given to the first three gospels, secondary attention to comparative material from the Jewish and Greco-Roman worlds. Instructor: Goodacre or staff. One course.

114. T'ai Chi and Chinese Thought. CCI, CZ The philosophy, cosmology, and other aspects of traditional Chinese thought embodied in the martial art of T'ai Chi. Course conducted through readings and lectures as well as actual movement praxis.
between Western bio-medical notions of the body and those implied by T'ai Chi and other facets of Chinese thought and practice, such as Chinese medicine. Instructor: Nickerson. One course. C-L: Dance 114

115AS. Transnational Buddhism in Asia and America. CCI, CZ An examination of Buddhism in Asia, Europe, and the United States from the mid-nineteenth century to the present. Emphasis on global exchanges that resulted in the emergence of Buddhism in the United States and Europe and the transformation of Buddhism in Asia. Instructor: Jaffe or staff. One course.

115BS. Buddhist Ethics. CCI, CZ, EI, W Survey of various Buddhist understandings of ethics, both classical and contemporary. How different Buddhist communities have responded to such ethical problems as the existence of evil, war, injustice, and suffering as well as contemporary Buddhist debates over abortion, ethnic fratricide, human rights, environmental problems, economic justice, and cloning. Instructor: Jaffe or staff. One course. C-L: Ethics

116A. Gender and Morality: Indian Perspectives. ALP, CCI, CZ, EI Explores articulations of morality in literary, philosophical, and everyday contexts of India and the Indian diaspora, with focus on gender. Relationships between ideological depictions of women across varied contexts and women's social lives. Gendered visions underlying personhood, duty, sexuality, family, community, and lifestyle. Readings from Hindu ethics, epic narrative, ethnography, fiction and poetry. Instructor: Prasad. One course. C-L: Women's Studies 112

117. Mahayana Buddhism. CCI, CZ Special features of the doctrine and practice of Buddhism in Tibet, China, Korea, and Japan, with an account of their origins in the Indian subcontinent. Instructor: Staff. One course. C-L: International Comparative Studies 120B

119. Muslim World: Transformations and Continuities. CCI, SS One course. C-L: see Cultural Anthropology 126; also C-L: International Comparative Studies 101F, Women's Studies

120. History of the Christian Church. CCI, CZ, EI Crucial events, issues, structures, and writings that have shaped the Christian community and influenced Western civilization from the time of the early church to the present. Special attention to ethical themes such as human destiny, the "good life," reform and renewal that have been permanent elements in Christian history. Instructor: Hillerbrand. One course. C-L: History 156B

121. Roman Catholic Tradition. CZ History of the tradition from early days through the reforms of Vatican II with emphasis on the experiences of American Catholics, concluding with a discussion of current concerns about gender equality, sexuality, and the post-Vatican II crisis of authority. Instructor: Clark or staff. One course.

124. Religion in American Life. CZ, EI A historical survey, with emphasis on the ways that religious experiences, beliefs, and traditions have found expression in religious communities and institutions, and in American public life. Instructor: Staff. One course. C-L: Ethics


128. Christians in Crisis. CCI, CZ, EI Christian thought and debate on, and theological analysis of, such contemporary issues as abortion, creationism, homosexuality, liberation, poverty, racism, and sexism. Instructor: Staff. One course. C-L: Ethics

129. Religion and Science: Biology, Minds, and Souls. CCI, CZ, STS The diverse interactions of religion and science from the Renaissance to the present. The profound transformation of premodern science by seventeenth-century revolutions and nineteenth-century discoveries; in turn, the transformation of society, including religion, by modern science. Some consideration of physics and astronomy, but major focus on the impact of
Darwinian anti-teleology and modern biology, especially animal studies, on "natural theology" and traditional arguments from design. Thinkers to be considered include Francis Bacon, Montaigne, Spinoza, Thomas Huxley, Albert Einstein, and E. O. Wilson. Topics include evolution, human consciousness, human identity, and the human-animal boundary. Instructor: Bland. One course.

131. Sacred Space in South Asia. CCI, CZ Hindu, Jaina and Buddhist traditions, about notions of "sacred space" in South Asia, particularly India, and the South Asia diaspora: temple architecture, pilgrimage, festival and daily ritual, tourism, oral and written literatures, popular media, and performance. Topics include sacredness of the human body, domestic altars, temple complexes, religious processions, festivals and historic monuments. The contested social contexts and the politics of mapping and marking sacred sites. Instructor: Prasad. One course.

133. Classical Judaism, Sectarianism, and Early Christianity. CCI, CZ The emergence of ancient Judaism from late biblical times with the christianization of the Roman Empire by Constantine the Great. The variety of Judaism explored through the literature of the Dead Sea Scrolls, the New Testament, and paganism. The impact of Greco-Roman (Hellenistic) culture on all these traditions. Instructor: E. Meyers. One course. C-L: Jewish Studies 105


136. Contemporary Jewish Thought. CCI, CZ, EI Modern Jewish thought from Mendelssohn to the present, with particular reference to the dynamics of emancipation, antisemitism, religious reform, Zionism, the rise of natural religion with its emphasis on the supremacy of ethics, and feminism. Instructor: Bland or E. Meyers. One course. C-L: Jewish Studies 107

138. Gender in Religion in the United States. CCI, CZ Women's religious experience in America, from the lives of early American 'good wives' to the work of Catholic nuns in the nineteenth century and the spirituality of Jewish feminists in modern America, concluding with a discussion of contemporary issues, for example, feminist theology, sexuality, and admission of women to pastoral leadership. Instructor: Staff. One course. C-L: Women's Studies

140. Religions of India. CCI, CZ Major religious traditions of the subcontinent: Hinduism, Buddhism, Jainism, and Islam. Instructor: Lawrence, Prasad, or staff. One course. C-L: International Comparative Studies 170G

144. Introduction to the Civilizations of Southern Asia. CCI, CZ One course. C-L: see Asian and African Languages and Literature 160; also C-L: Cultural Anthropology 101, History 193, International Comparative Studies

146. Introduction to Islamic Civilization. CCI, CZ, EI First part of two-course sequence providing an extensive survey of Muslim peoples and institutions. The Middle Eastern origins and cultural attainments of medieval Islam. Instructor: Lawrence, Moosa or staff. One course. C-L: Cultural Anthropology 147, History 101G, Medieval and Renaissance Studies 146A, International Comparative Studies 141A, Information Science and Information Studies, Ethics

147. Introduction to Islamic Civilization. CCI, CZ, EI Continuation of Religion 146. Instructor: Lawrence, or staff. One course. C-L: Cultural Anthropology 148, History 102G, Medieval and Renaissance Studies 147A, International Comparative Studies, Ethics

148. Alternative Religion in America. CCI, CZ Focus on both the historical development of particular traditions (for example, Mormon, Adventist, New Age) and general themes in American religious life (for example, relationship between religion and health, appeal of communitarian and millenarian movements). Instructor: Staff. One course.
152B. Islamic Mysticism: Perso-Indian (Eastern) Traditions. CCI, CZ, EI Teachings, texts, and institutions of Sufism as it expanded from Iraq and Iran to India and Indonesia, from twelfth to the twenty-first century. C-L: Comparative Area Studies. Instructor: Lawrence. One course. C-L: International Comparative Studies 141E, Islamic Studies, Ethics


159. Ethical Issues in Early Christianity. CCI, CZ, EI Investigation of two major transitions in the early Christian movement and their impact on the formulation of Christian ethics: Christianity's transition from a sect within Judaism to a Greco-Roman religious movement whose constituency came largely from the "pagan" world, and its transition from a sect in danger of persecution to a religion favored and supported by Roman imperial authorities. How these transitions are reflected in early Christian attitudes toward, and practices concerning, poverty and wealth, war and military service, marriage and sexuality, capital punishment, slavery, and other issues. Instructor: Clark. One course.

160. Religions of the African Diaspora. CCI, CZ, SS One course. C-L: see African and African American Studies 150; also C-L: Cultural Anthropology 150, International Comparative Studies

161A. West African Rootholds in Dance. ALP, CCI One course. C-L: see Dance 110A; also C-L: African and African American Studies 110A, Asian and African Languages and Literature 110A, Cultural Anthropology 129A


161C. Dance and Dance Theater of Asia. ALP, CCI, CZ One course. C-L: see Dance 149; also C-L: Cultural Anthropology 149, Theater Studies 133, Asian and African Languages and Literature 149, International Comparative Studies 170C

161E. Music in East Asia. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 184; also C-L: Music 134

161F. The Turks: From Ottoman Empire to European Union. ALP, CCI, CZ, R One course. C-L: see Turkish 135; also C-L: Cultural Anthropology 152, History 141A, Islamic Studies

161G. Dante's Divine Comedy: Hell, Purgatory and Paradise. ALP, CCI, CZ, EI One course. C-L: see Italian 143; also C-L: Medieval and Renaissance Studies 166, History 142, International Comparative Studies

161H. Kundalini Yoga and Sikh Dharma. ALP, CCI, CZ One course. C-L: see Dance 155; also C-L: Asian and African Languages and Literature 135, International Comparative Studies 170H

161J. History and Practice of the Dance and Dance-theatre of India. ALP, CCI, CZ One course. C-L: see Dance 147; also C-L: Cultural Anthropology 149B, Theater Studies 134, Asian and African Languages and Literature 154

161K. Representing the Holocaust. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 156; also C-L: Literature 165B, Jewish Studies 130

161N. Dance and Religion in Asia and Africa. ALP, CCI, CZ One course. C-L: see Dance 158; also C-L: Asian and African Languages and Literature 136, Cultural Anthropology 149C, African and African American Studies 158, International Comparative Studies 102A
161O. Introduction to Islamic Communities in North Carolina. CCI, CZ, SS One course. C-L: see Asian and African Languages and Literature 178; also C-L: Islamic Studies

161QS. Documenting Religion. CCI, CZ One course. C-L: see Documentary Studies 168S; also C-L: Cultural Anthropology 162AS, Visual Studies 103GS

161T. Muslims in the West. CCI, CZ, SS One course. C-L: see Cultural Anthropology 135


161V. Thinking About God: The Nature of Religious Belief at the Crossroads of Judaism, Christianity, & Islam. CCI, CZ, EI One course. C-L: see Philosophy 135; also C-L: Cultural Anthropology 120B, International Comparative Studies 102F, Turkish 136

161WS. Science, Ethics, & Society. CZ, EI Two courses. C-L: see Philosophy 185S

162S. Buddhist Meditation: Cultivation Practices and Psychology. CCI, CZ, EI Buddhist paths and techniques of self-transformation in premodern and modern Buddhist cultures. Conceptions of the psychophysical person and goals of Buddhist practice assumed by these meditative techniques. Reinterpretation and modification of traditional meditation practices in contemporary Buddhist societies. Instructor: Jaffe. One course.


167. Ethics in South Asia. ALP, CCI, CZ, EI Explores through anthropological and literary approaches, how ethics is articulated in religious texts and epics, in everyday contexts, and in the performative arts in South Asia. Examines ethical thinking reflected in conceptualization and expressions of personhood, duty, sexuality, family, and community. Explores issues such as the imagination and negotiation of moral authority; the constitution, assessment, and transmission of values; the role of colonialism; and the moral magnetism of epic traditions. Uses wide range of interdisciplinary material to help explore the practice of ethics in South Asia. Instructor: Prasad. One course.

168S. Muslim Ethics and Islamic Law: Issues and Debates. CCI, CZ,EI Premodern judicial arrangements and the contestations surrounding their modern incarnations. Topics include bioethics, gender and family law, war and peace, environmental issues, and political ethics. Instructor: Moosa. One course.

173. Religious Movements. CCI, CZ, SS One course. C-L: see Cultural Anthropology 138

182. Medicine and Religion in American Society. CZ, EI, STS Religious, social, and cultural understandings of pain and suffering, disease, mental illness, sexuality and sexualities, abortion, and euthanasia. Close reading and interpretation of historical, scientific, and philosophical texts as well as various media and art forms. Instructor: Staff. One course. C-L: Health Policy

183. Comparative Approaches to Global Issues (B, D). CCI, CZ, SS One course. C-L: see International Comparative Studies 125; also C-L: Cultural Anthropology 125, History 137, Political Science 125, Sociology 125, Global Health, Global Health

184. Religion and Film. CCI, CZ, EI A study of the relationship between motion pictures and religion. Focus on the comparative portrayal of organized religions; expressions of religious life; and religious topics, such as God, evil and morality, in both Western and non-Western films in which contemporary artists and intellectuals explore the challenges of modernity. Instructor: Hillerbrand. One course. C-L: Documentary Studies, Film/Video/Digital
186. The Theology and Fiction of C. S. Lewis. ALP, CZ, EI A study of texts of cultural criticism, fantasy fiction, and theological and moral argument by C. S. Lewis, their dependence on the cultural situation in which they were deployed, and the reasons for their continuing force and wide appeal. Instructor: Kort. One course.


SPECIAL TOPICS, INDEPENDENT STUDIES, AND SMALL GROUP LEARNING EXPERIENCES

20S. Special Topics in Writing. Various topics with diverse readings and intensive writing. Instructor: Staff. One course.

89FCS. Focus Seminars. CZ Topics vary from semester to semester. Open only to students in the Focus Program. Instructor: Staff. One course.

161R. Sociology of Religion. CCI, R, SS One course. C-L: see Sociology 151

185. Special Topics in Religion. Topics vary from semester to semester. Instructor: Staff. One course.

185S. Special Topics in Religion. Seminar version of Religion 185. Instructor: Staff. One course.


191A. Independent Study. Individual guided readings in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. For freshmen and sophomores with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

191B. Research Independent Study. R Individual research and readings in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. For freshmen and sophomores with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192A. Independent Study. See Religion 191A. For freshmen and sophomores with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

192B. Research Independent Study. R See Religion 191B. For freshmen and sophomores with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193A. Independent Study. See Religion 191A. For juniors and seniors with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193B. Research Independent Study. R See Religion 191B. For juniors and seniors with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194A. Independent Study. See Religion 191A. For juniors and seniors with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194B. Research Independent Study. R See Religion 191B. For juniors and seniors with departmental approval. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195S. Junior-Senior Seminars. CZ Topics and instructors to be announced. Instructor: Staff. One course.
196S. Junior-Senior Seminars. CZ Topics and instructors to be announced. Instructor: Staff. One course.


198R. Honors Research. R, W Continuation of, and required for credit for, Religion 197. Prerequisite: Religion 197. Consent of the director of undergraduate studies required. Instructor: Staff. One course.

For Seniors and Graduates


204. Origen. CZ, EI The systematic and apologetic writings of an important Alexandrian thinker and exegete of the third century. Instructor: Clark. One course. C-L: Medieval and Renaissance Studies 204

207. Hebrew Prose Narrative. FL Focus on the grammar, syntax, and prose style of classical Hebrew composition; a comparative reading of modern and precritical Jewish and Christian commentary. Readings spanning the spectrum from the early Hebrew prose of Genesis and I and II Samuel to the late compositions of Chronicles and Ezra-Nehemiah. One year of classical Hebrew required. Consent of instructor required for undergraduates. Also taught as Old Testament 207. Instructor: Chapman, Davis, Peters, or Portier-Young. One course. C-L: Jewish Studies 201

208. Classical Hebrew Poetry: An Introduction. FL The problem of defining and understanding what is "poetic" in classical Hebrew. Theories of Hebrew poetry from Lowth to Kugel and O'Connor illustrated with readings from Psalms, Isaiah, Job, and Jeremiah. One year of classical Hebrew required. Consent of instructor required. Also taught as Religion 208. Prerequisites: OLDTEST 115, 116. Instructor: Chapman, Davis, Peters, or Portier-Young. One course. C-L: Jewish Studies 202

212S. Theorizing Religion. CCI, CZ, EI Late nineteenth- and twentieth-century theories, interpretations, and approaches to the study of religion. Instructor: Staff. One course.

215. Biblical Interpretation in Early Christianity. CZ, EI How early Christian writers of the second—mid-fifth centuries made meaning of the Scriptures in their own, postbiblical environments. Focus on the new historical, religious, and theological situations that required new readings of scriptural texts, the role of heresy and the ascetic movement in the development of biblical interpretation and canon development, and special problems that arose around these issues. Instructor: Clark. One course.


220. Rabbinic Hebrew. FL Interpretive study of late Hebrew, with readings from the Mishnah and Jewish liturgy. Consent of instructor required for undergraduates. Instructor: E. Meyers or staff. One course. C-L: Jewish Studies 203


232S. Religion and Literary Studies. ALP Theories concerning the relation of religion to literary forms, particularly narrative. Instructor: Kort. One course.


244. Archaeology of Palestine in Hellenistic-Roman Times. CCI, CZ, STS The study of material and epigraphic remains as they relate to Judaism in Hellenistic-Roman times, with special emphasis on Jewish art. Instructor: E. Meyers. One course. C-L: Jewish Studies 206

245S. Special Topics in Religion. CZ Subject varies from semester to semester. Instructor: Staff. One course.

254. Justice, Law, and Commerce in Islam. CZ, EI History and schools of Islamic jurisprudence; Islamic legal reasoning; approaches to ethics and procedural justice, the ethical regulation of commerce, including a detailed study of pertinent issues in Islamic law. Also taught as Law 568. Instructor: Moosa. One course. C-L: African and African American Studies 254, Medieval and Renaissance Studies 254, International Comparative Studies


283. Islam and Modernism. CCI Cultural, religious, and ideological forces which shape Muslim responses to modernism. Instructor: Lawrence. One course. C-L: International Comparative Studies, Islamic Studies

284. The Religion and History of Islam. CCI, CZ, R Investigation of the historical study of Islam: historiography as a discipline, the historical study of Islam in the Western world, Muslim views of Islamic history. Required critical essays and major research paper. Instructor: Lawrence. One course. C-L: International Comparative Studies, Islamic Studies

285. Freedom and Law. Lecture course will explore the centrality of freedom and law to the doctrine of God as well as to the understanding of the human being and unfold their complex interrelationship in the traditions of theology and philosophy. Also taught as Christian Theology 285. Instructor: Huetter. One course.


288. Buddhist Thought and Practice. CCI, EI A historical introduction to Buddhist thought and practice, with special attention to their interrelationship in the living religion. Instructor: Jaffe. One course. C-L: International Comparative Studies

THE MAJOR

Major Requirements. Ten courses, at least eight of which must be at the 100 level or above, including a small group learning experience—a junior-senior seminar, a 200-level course, Religion Department independent study, or a Religion Department departmental honors project. The student, in consultation with an assigned advisor and with the advisor's
approval, will select at least one course apiece for each of three different religions and will choose a set of four courses which constitute a thematic or methodological focus on a particular aspect of religion. Only two approved study abroad courses can count towards the major. Only one Divinity School course can count towards the major, and that course cannot be equivalent to a course offered by the Department of Religion. The director of undergraduate studies will identify Divinity School courses that may count toward the religion major.

**Departmental Graduation With Distinction**

The Department of Religion has a program for Graduation with Distinction (see the bulletin under that heading). This program is intended for the outstanding religion major who has demonstrated the desire and talent to pursue independent research. The student, under supervision by an advisor, will produce a thesis of exceptional quality.

**THE MINOR**

*Minor Requirements.* The religion minor offers students specializing in another department or program the opportunity to enrich their studies with a wider perspective in religions. The requirements consist of a minimum of five religion courses, at least four of which must be at the 100 level or above. Only one approved study abroad course can count towards the minor. Only one Divinity School course can count towards the minor, and that course cannot be equivalent to a course offered by the Department of Religion. The director of undergraduate studies will identify Divinity School courses that may count toward the religion minor.

**Foreign Languages**

To prepare for graduate or professional study of religion, the department recommends that students complete at least four courses in college-level study, or the equivalent, of a foreign language. Master of Arts and Doctor of Philosophy programs often require examination in one or two foreign languages. Students planning to attend a theological seminary should note that knowledge of biblical languages, as well as Latin, frequently is presupposed or required. Those planning to pursue studies of Asian religions should begin appropriate language study as part of their undergraduate preparation.

**Romance Studies (ROMST)**

Professor Longino, *Chair,* Professor Kaplan, *Director of Undergraduate Studies;* Professors Bell, Dubois, Finucci, Garci-Gómez, Greer, Jameson, Kaplan, Mignolo, Moi, Stewart, and Thomas; Associate Professors Dainotto, Hardt, Sieburth, and Solterer; Assistant Professors Adrian, Eisner, Gabara, Milian, Schachter, and Viego; Professor Emerita Orr; Professor of the Practice and Director of French Language Program Tufts; Associate Professor of the Practice and Director of the Portuguese Language Program Damasceno; Assistant Professor of the Practice and Director of the Italian Language Program Fellin; Assistant Professor of the Practice and Director of the Spanish Language Program Paredes; Research Professors Dorfman and Keineg; Adjunct Associate Professor Byrd

Majors (in French, Italian, and Spanish) and minors are available in this department. Prerequisites for all courses numbered 100 or above not taught in English:

Courses: French 15 or Spanish 15 or placement exam
Italian 15 or 22
French, Italian, Spanish 76
Portuguese 63 or 76, or consent of instructor

or SAT II: French: score of 640+
Italian: score of 640+
Spanish: score of 660+

or AP: French, Italian, or Spanish literature exam: score of 4 or 5
French, Italian, or Spanish language exam: score of 5

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Students may submit AP scores for credit as well as placement in French or Spanish. Credit is awarded as follows:

1 credit for French, Italian, or Spanish 76 for a score of 4 or 5 on AP literature exam
1 credit for French, Italian, or Spanish 76 for a score of 5 on AP language exam

Students who by reason of foreign residence have advanced proficiency in French, Italian, Portuguese, or Spanish must be placed by the director of undergraduate studies.

FRENCH (FRENCH)

1. Elementary French 1. FL Introduction to the essential elements of French language and aspects of French/ Francophone cultures. Open to students who have never studied French before, or to those who have not studied French more than two years in high school. Practice in understanding, speaking, reading, and writing the language. Includes computer, video, and audio labs. Five class meetings a week. Instructors: Tufts and staff. One course.

2. Elementary French 2. FL Continues work on the essential elements of French language and aspects of culture. Aural comprehension, speaking, reading, and writing activities receive equal attention. Requires work in the language and computer laboratory. Classes conducted in French. Open only to students who have a SAT II French score no higher than 420-480, or who have studied French for no more than three years in high school. Four class meetings a week. Instructor: Tufts and staff. One course.

14. Intensive Elementary French. FL Covers the basic elementary French language curriculum (French 1-2) in one semester. Not open to students who have studied French for more than two years pre-college. Practice in understanding, speaking, readings, and writing French, and an introduction to some aspects of French/ francophone cultures. Computer, video, and audio laboratory work required. Eight class hours a week. Instructors: Tufts and staff. Two courses.

15. Intensive Intermediate French Language and Culture. FL Covers the intermediate French language curriculum (French 63, 76) in one semester. Increased attention to grammatical variety and accuracy; guided writing practice; development of second language reading skill with increasing emphasis on critical analysis of cultural and literary texts. Resources include audiotapes, computer tutorials, videotapes, and French language websites. Six class hours a week. Prerequisite: French 1-2 or 14 at Duke, or SAT II score of 490-580, or AP Language Test score of 3 in French, or consent of director of language program. Instructors: Tufts and staff. Two courses.

63. Intermediate French Language and Culture. CZ, FL The first half of the two-semester program of intermediate French. Review of basic grammar; introduction to second language reading as a process; emphasis on understanding the cultural implication of written and visual texts; guided writing practice. Resources include audiotapes, computer tutorials, and videotapes. Prerequisite: French 2 or 14 at Duke, or SAT II score of 490-580, or AP Language Test score of 3 in French. Instructors: Tufts and staff. One course.

76. Advanced Intermediate French Language and Culture. CZ, FL The second half of the two-semester program of intermediate French. Focus on building higher proficiency levels in all four skills. Intensive grammar review and daily reading and in-class discussion of texts of varying lengths and styles which increase in difficulty as the semester progresses. Guided essay writing on topics related to the readings and discussion. Prerequisite: French 63 at Duke, or SAT II score of 590-630, or AP Literature Test score of 3, or an AP Language Test score of 4. Instructors: Tufts and staff. One course.

100S. Cultural and Literary Perspectives. CCI, FL, W Designed to give students leaving intermediate French the reading and writing skills necessary to enter 100-level courses in French studies. Cultural and literary texts introducing students to contemporary French thought, and to how cultural practices, globalization, and immigration influence the formation of a French identity. Topics include stereotypes, family life, cuisine, youth culture, sports, language, media, and politics. Prerequisites: French 76, SAT French score
of 640 or above, AP French Language 5, AP French Literature 4 or 5, or equivalent. Instructor: Tufts and staff. One course.

101. Advanced French Language/Writing Workshop. CCI, FL, W Development of competence in written expression in French, with special emphasis on stylistic variations, lexical nuances, and complex grammatical structures. Practice of different forms of French rhetoric and different styles in creative, argumentative, and analytical writings through literary, journalistic, historical, and philosophical texts. Revision and rewriting, with focus on in-class analysis and critique and individual conferences. Prerequisite: French 76, or AP Language Test score of 5, or AP Literature Test score of 4 or 5, or equivalent. Instructors: Tufts and staff. One course.

104S. French for Current Affairs. CCI, FL Contemporary culture/civilization course on changes/controversies in France today. Sources from French media (press and TV). Current cultural, social, economic, political issues. Includes political institutions, media, religion, immigration, health and educational systems, foreign policy, France in the European Union. Equal emphasis on written/oral skills. Instructor: Tufts and staff. One course. C-L: International Comparative Studies 182FS

107S. French Phonetics. FL Theory and practice of French pronunciation, corrective phonetics, intonation, accentuation, syllabification, elision and liaison. Focus on areas of speech production in French that are generally the most difficult for native speakers of English. Comprehension, dictation, and recitation exercises; interactive video and audio activities; self-assessment tasks; and end-of-term individual improvement grade. Instructor: Thomas or Tufts. One course. C-L: Linguistics 124S

108. French Composition and Translation. CCI, FL Advanced Translation and Stylistics. Cultural and social difference between French and English patterns in written and oral expression. Extensive practice in translation of different types of texts. Equivalencies between French and English. Prerequisite: French 101 or equivalent or consent of instructor. Instructor: Thomas. One course. C-L: Linguistics 121

109S. French for Business. CCI, FL Functional, interactive, advanced language course to prepare students for working in France. Presentation of French business culture and operating policies and procedures of the workplace. Includes information about job search, banking and insurance, business correspondence. Current socio-economic problems and cross-cultural issues. Instructor: Staff. One course.

110S. Contemporary Ideas. CCI, CZ, FL Readings and discussion of French works which have provoked political or intellectual thought in recent years. For freshmen and sophomores only. May be repeated. Instructor: Staff. One course. C-L: International Comparative Studies

111S. French Topics for Freshmen and Sophomores. ALP, CCI, FL A literary, cross-cultural critique focusing on specific topics to be announced. Open only to freshmen and sophomores. May be repeated. Instructor: Staff. One course. C-L: International Comparative Studies

113. France, the "Universal" Nation. CCI, CZ, FL The concept of "nationhood" and French national identity, with its "universal" sense of reason and justice, and its specific and "exceptional" qualities, including a commitment to a secular state, as compared to the American model. Not open to students who have taken this course as French 139. Instructor: Keineg. One course. C-L: International Comparative Studies

114. Les Autres Frances. ALP, CCI, CZ, FL Exploration of linguistic and ethnic minorities within France, with an emphasis on Corsica, Alsace, and Brittany. The future of these minorities in the context of the European Community. Includes novels, films, essays, paintings, audio-archives. Instructor: Keineg. One course.

114F. Sociology of Culture. CCI, CZ, FL Exploration of the imprecise notion of popular and mass culture--globally as the interpretation of behavior, and locally, regionally, or nationally as the collective expression and rituals of a group: for example, hip hop, soccer, or business culture. Study of who produces culture, how it is disseminated, what are cultural
practices today, and the relationship between political and cultural practices (Taught in Duke in France). Instructor: Popa. One course.


118. Creative and Practical Writing Workshop. ALP, CCI, FL, W Workshop developing writing skills in a variety of practical and literary genres. Study of examples of each genre. Recommended for majors and students returning from study abroad in French speaking countries. Native speakers need consent of instructor. Not open to students who have taken course as French 160. Prerequisite: At least two French courses at the 100-level, or equivalent. Instructor: Kaplan and Keineg. One course.

119. The Pleasure of Reading. ALP, CCI, FL Developing a level of reading proficiency in French comparable to one's native language. Reading a variety of genres including works by French and francophone authors from mid-nineteenth to the twentieth-first century. Prerequisite: French 76 or equivalent. Instructor: Tufts or staff. One course.

122. French Comedy. ALP, CCI, FL The theatrical tradition of comedy and its evolution, with emphasis on Molière, Marivaux, and Beaumarchais, and other readings from Pathelin to Ionesco. Introduction to theory of comedy from Moliere to Freud. Instructor: Stewart. One course.

123. The French Short Story. ALP, CCI, FL The history of short fiction focusing on exemplary texts from various historical periods, beginning with the Middle Ages. Instructor: Bell, Kaplan, or Keineg. One course.

124S. Poetry. ALP, CCI, FL, W Exploration of the rich and varied corpus of French and Francophone poetry from the medieval epic to surrealism and beyond. Instructor: Keineg. One course.


128. French Scientists Write. ALP, CCI, FL Texts by pioneering French scientists in various historical periods: Descartes, Diderot, Claude Bernard, Henri Poincaré, François Jacob. No science prerequisites; not a technical course, but an exploration of the elegance and clarity of best scientific writing in France. Instructor: Bell. One course.


132. French in the New World. ALP, CCI, CZ, FL Francophone languages and cultures in Canada, New England, Louisiana and the Caribbean. Origins, history, and linguistic characteristics as well as current political, linguistic, and cultural issues studied from
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fictional texts, documents, or audio-visual productions. Instructor: Staff. One course. C-L: International Comparative Studies 183E

133. Childhood in French Culture. ALP, CCI, FL Childhood in French culture since the nineteenth century, beginning with Rousseau's Emile. Novels, poetry, essays, films. Instructor: Keineg. One course.

135. France's Cultural Legacy in the New World: Quebec. ALP, CCI, CZ, FL Culture and literature of Quebec and French Canada; best of poetry, novels, drama, essays, and films. Instructor: Keineg. One course. C-L: Canadian Studies

140S. French Literature. ALP, CCI, FL A cross-cultural analysis focusing on specific literary or cultural French or Francophone topics to be announced. Open to juniors and seniors. May be repeated. Instructor: Staff. One course.

141S. French Literature. ALP, CCI, FL Topics to be announced. Open to juniors and seniors. May be repeated. Instructor: Staff. One course.

142. France in the Making: Language, Nation, and Literary Culture in Premodern Europe. CCI, CZ, FL Origins and transformations of French imaginaries. Inquiry into earliest myths/images, including crusade and holy war, which pitted France and Europe against Arab and Muslim world. Fictional, historical chronicle, autobiography, and film exploring how first ideas of France in the West were forged through conflict--war, foreign occupation, American "new France" settlement. Instructor: Schachter or Solterer. One course. C-L: Medieval and Renaissance Studies 140A, International Comparative Studies

143S. Topics in Renaissance Literature and Culture. ALP, CCI, FL Topics may include: women writers, love and death, the Wars of Religion, identity and alterity, travel literature, the new world. Instructor: Schachter. One course. C-L: Medieval and Renaissance Studies 160S, International Comparative Studies

145. Topics in Seventeenth-Century French Literature. ALP, CCI, FL Readings from playwrights, philosophers, poets, moralists, historians, travelers, novelists, and letter writers. Topics include taste, science, religion, love, death, autobiography, and myth-making. Instructor: Longino. One course.


148. Turmoil in Nineteenth-century French Society. ALP, CCI, FL Fiction, film, history, essays on political turmoil that shaped the modern French state: Revolutions, empires, colonization, immigration. Instructor: Staff. One course.

149S. First-Year Seminar in French. FL Seminar for first-year undergraduates with the desire and ability to take courses in literature, history, culture, art, cinema, or drama in French at the 100-level. Topics vary each semester offered. For students thinking about majoring or minoring in the language, counts towards both. Prerequisite: SAT II score of 640 or above, AP Language score of 5, or Literature score of 4 or 5. Native speakers or students who did high school work in French encouraged to enroll after consulting with instructor. Instructor: Staff. One course.

151S. Contemporary French Fiction. ALP, CCI, FL Novels published in France during the past decade. Fashions, fads, new trends, succès de scandale, and prize winners. Instructor: Kaplan. One course.

154. Twentieth Century French Theater. ALP, CCI, FL Topics may include: Alfred Jarry (1896) and "Theater of the Absurd" of 1950's, French stage and WW II, post-May 1968 political theater; regional theater; francophone theater; women writers; directors and actors. Instructor: Tufts or staff. One course. C-L: Theater Studies 120

155. French Cinema. ALP, CCI, FL Historical overview of French cinema from the beginning of the sound period (1930). Films by directors such as Clair, Renoir, Carné,

156. World War II and French Film. CCI, CZ, EI, FL Film scripts, memoirs, novels, political and social history, and cinematic technique that inform the viewing of French films on World War II. Possible films to be viewed: Clément's Jeux interdits, Malle's Au revoir les enfants and Lacombe Lucien, Miller's L'accompagnatrice, Yanne's Boulevard des hirondelles, and Lanzmann's Shoah. Instructor: Staff. One course. C-L: Film/Video/Digital 117, History 153C, Visual Studies 126F, Film/Video/Digital

157. Comics and Culture: Images of Modern France in the Making. ALP, CCI, FL An investigation of the French comic strip over the last century from a historical, sociological, and technical perspective. Topics include political satire, Nazi propaganda, regional and national stereotypes, the role of women, and the influence of cinema and television. Readings include original works, interviews, critical articles, and related historical cultural, and technical studies. Instructor: Tufts. One course. C-L: Visual Studies 126G


159. Contemporary Culture Wars. CCI, CZ, EI, FL Fiction, film, and essays that deal with the problems in French and immigrant culture: integration, religion and international relations. Instructor: Staff. One course. C-L: Visual Studies 126I

160. Topics in Sexuality and Gender Studies. ALP, CCI, EI, FL Differences redefined and questioned in terms of the relationship between sexual identity, social ethos, and ethical conventions. Works may be by women or men writers, critics, sociologists, and thinkers from France and francophone countries and including historical points of view. Instructor: Staff. One course. C-L: Women's Studies


164D. Global France. ALP, CCI, CZ, EI Explores connections between France's imperial history in Africa, Asia and the Americas and contemporary cultural/political debates about citizenship, integration and belonging in France from 17th century to present. Analyzes ethical dilemmas posed by colonialism. Includes novels (e.g., works by Dumas, Camus, Cesaire, Fanon, Djebar, Chamoiseau), films, music, historical documents, cultural/literary criticism, social/political theory, legal documents and writings on government policy. Weekly lecture in English and two discussion sections: one in English, one in French. French section will do reading and written work in French. Prereq: one 100-level French course to

Romance Studies (ROMST) 511
enroll in French section. Instructor: Dubois. One course. C-L: History 165D, English
171FD, Cultural Anthropology 156D

165S. French Films/American Masks. ALP, CCI, FL. Analyzes contemporary French
films and their American adaptations in English for American (International) audience.
Films may include True Lies, Point of No Return, The Toy, The Birdcage, Father's Day,
C-L: Visual Studies 126JS

167D. Albert Camus: Politics and Passion in Post-War France. ALP, CCI, CZ, EI
Major works--fiction, theater, political essays--by Albert Camus (1913-1960), French-
Algerian writer and public intellectual, studied in the context of post-war politics and
history, from WWII to Stalinism and the Algerian conflict. Course considers Camus' contributions to humanitarianism, environmentalism, and the critique of the death penalty both through his writing and his political activism. Instructor: Kaplan. One course. C-L:
Literature 154AD, History 175AD

168. Les Educations Sentimentales. ALP, CCI, FL. The theme of growing up and falling
in love for the first time in modern French literature, beginning with bildungsroman of the early twentieth century and ending with work from the AIDS era. Instructor: Keineg. One
course.

169. North of the Border: The Novel in French Canada. ALP, CCI, CZ, FL. The Quebec
novel from the late nineteenth century to the twenty-first: the Quiet Revolution (1960) and
the independence movement, transformation away from nationalism to a new multicultural society. Instructor: Keineg. One course. C-L: Canadian Studies, International Comparative Studies

170. French Science Fiction. ALP, CCI, CZ, FL. The science fiction and utopia genres in
French and Francophone literature and culture from the late XIXth-Century to the extreme
present. Instructor: Thomas. One course.

180S. French Literary History and Theory. ALP, CCI, FL. Major writers and genres of
French literary tradition from Middle Ages to the present; problem of establishing reliable
texts; varieties and purposes of literary research. Capstone course principally for French
majors. Instructor: Staff. One course.

181. Research Independent Study. R Individual research in a field of special interest,
under the supervision of a faculty member, resulting in a substantive paper or written report
containing significant analysis and interpretation of a previously approved topic. Open only
to qualified juniors by consent of instructor and director of undergraduate studies. Instructor:
Staff. One course.

182. Research Independent Study. R See French 181. Open only to qualified juniors by
consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

183. Research Independent Study. R See French 181. Open only to qualified seniors by
consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

184. Research Independent Study. R See French 181. Open only to qualified seniors by
consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

185. Topics in French Literature and Culture. ALP, CCI, FL. Topics to be announced.
(Offered only in the Duke-in-France Program.) Instructor: Staff. One course.

186. Advanced Topics in French and/or Francophone Literature/Culture Abroad.
ALP, CCI, FL. Topics may vary. Instructor: Staff. One course.

188. Honors Thesis. R Preparation and writing of research paper for "departmental
distinction." Consent of both the instructor and the director of undergraduate studies
required. See section on honors in Bulletin. Instructor: Staff. One course.

191S. Topics in French Literature and/or Culture. ALP, CCI, CZ Topics to be
announced. Taught in English. Instructor: Staff. One course.


195. Topics in French and/or Francophone Culture Abroad. CCI, CZ, FL Topics may vary. Instructor: Staff. One course.

196. Aspects of Contemporary French Culture. CCI, CZ, FL Cultural questions that are associated with contemporary France. French urbanism, mentalities, habits, and social rituals as they appear to be different from American practices. Topics to be announced. Offered only as part of the summer program in Paris. Instructor: Staff. One course. C-L: International Comparative Studies

197S. Aspects of French Literature. ALP, CCI, FL Concentration on single authors, genres, movements, or themes. Topics to be announced. Offered only as part of summer program in Paris. Instructor: Staff. One course.

198. Topics in French Literature and/or Culture Abroad. ALP, CCI, CZ Topics to be announced. Taught in English. Instructor: Staff. One course.

200S. Seminar in French Literature. ALP, CCI, FL Cross-cultural analysis of literary and cultural topics focusing on specific objects of inquiry. May be repeated. Instructor: Staff. One course.

206. Contemporary French Extreme Fiction. ALP, CCI, FL Contemporary innovations and new models of narration at beginning of the twenty-first century. May include the autoportrait (Leiris, Perec, Roubaud), the documentary (Bon, Kuperman, Bergounioux, Houellebecq), and the minimalist school (Chevillard, Echenoz, Deville, Lenoir). Instructor: Thomas. One course.


240. Medieval Fictions. ALP, CCI, FL The literatures and cultures of premodern France. Introduction to vernacular languages. Topics include literacy, orality, the experience of allegory, fictionality, the uses of the past. Major writers include Chrétien de Troyes, troubadours and trouvères, Guillaume de Machaut, Christine de Pizan, Alain Chartier. Instructor: Solterer. One course. C-L: Medieval and Renaissance Studies 240

247. Early Modern Studies. ALP, FL, R Pursuits of knowledge and the shaping of the individual. Literature of travel, science, sexuality, meditation, worldliness, theater, politics by well known and lesser known authors of seventeenth-century France. Genres may include fables, letters, memoirs, sermons, treatises, novels, plays. Instructor: Longino. One course. C-L: Medieval and Renaissance Studies 249

251. Topics in French Literature of the Eighteenth Century. ALP, FL Close study of a particular author, genre, or interpretive category of Enlightenment literature. Instructor: Stewart. One course.

252. Topics in French Literature of the Modern Era. ALP, CCI Close study of a particular author, genre, or interpretive category of the twentieth century. May include issues such as authorship, translation, reception or critical theory. Instructor: Kaplan and Staff. One course.

256. Modern Literature and History. ALP, CCI, CZ, FL The interaction of history and literature in a particular period, for example: the occupation of France, the French Revolution. Problems of interpretation, historical memory, social identity, and narrative. Instructor: Kaplan or staff. One course. C-L: History 256, International Comparative Studies 280B


ITALIAN (ITALIAN)

1. Elementary Italian 1. FL Introduction to the basic elements of Italian language and culture. Equal attention to aural comprehension, speaking, reading, and writing. Conducted in Italian. Not open to students with prior knowledge of Italian. Four class meetings a week. Instructor: Fellin and staff. One course.

2. Elementary Italian 2. FL Italian 2 develops and expands elements acquired in Italian 1: aural comprehension, speaking, reading, and writing. Conducted in Italian. Four class meetings a week. Prerequisite: Italian 1 or placement through the Director of the Italian Language Program. Instructor: Fellin and staff. One course.

11. Italian for Beginners. FL Practice in understanding, speaking, reading, and writing. (Taught in Duke-administered programs in Italy.) Placement tests administered to returning students intending to continue in Italian language studies. Instructor: Staff. One course.

14. Intensive Elementary Italian. FL Covers the basic elementary curriculum (Italian 1 and 2) in one semester. Listening, speaking, reading, writing, and cultural exploration activities receive equal attention. Meets five times a week, eight contact hours. Instructor: Fellin or staff. Two courses.

15. Intensive Intermediate Italian. CZ, FL Covers the basic intermediate curriculum (Italian 63 and 76) in one semester. Listening, speaking, and cultural exploration activities with emphasis on the development of reading and writing abilities. Meets five times a week, eight contact hours. Prerequisite: successful completion of college-level elementary course or consent of the Italian language director. Instructor: Fellin or staff. Two courses.

21. Accelerated Elementary Italian. FL Covers the elementary Italian Language curriculum (Italian 1-2) in one semester. Development of understanding, speaking, reading, and writing skills. Introduction to aspects of Italian life and culture. Four class meetings a week. Instructors: Fellin and staff. One course.

22. Accelerated Intermediate Italian. FL Covers the intermediate Italian Language curriculum (Italian 63-76) in one semester. Attention to vocabulary development and grammatical accuracy. Writing practice and development of reading skills with emphasis on analysis of cultural and literary texts. Prepares students to enroll in courses at the 100 level. Four class meetings a week. Prerequisite: Italian 21 or consent of the Italian Language Director. Instructor: Fellin and staff. One course.

63. Intermediate Italian. CZ, FL Content-based approach focusing on aspects of Italian culture and contemporary society. Focus on the development of second language reading skills; review of grammar; practice in understanding, speaking and writing. Literary and cultural texts taken from a variety of media. Instructors: Fellin and staff. One course.

76. Advanced Intermediate Italian. CZ, FL Further development of the elements practiced in Italian 1-63. Increased attention to grammatical accuracy and vocabulary development; guided writing practice and development of second language reading skills with emphasis on analysis of cultural and literary texts. Prepares students for 100 level Italian courses. Instructors: Fellin and staff. One course.

101. Writing Workshop in Italian. CCI, FL, W Development of composition tasks related to expository and other forms of writing. Focus on grammatical skills, conventions, and rhetorical techniques for organizing information. Substantial work on the development of
writing strategies (vocabulary, editing, revising, and rewriting) through several short papers and a final long paper. Prerequisite: Italian 15, 22, or 76, or consent of the Italian Language Program Director. Instructor: Fellin and staff. One course.

103. Topics in Italian Culture. ALP, CCI, FL Practice in understanding, speaking, reading, and writing Italian with special attention to cultural topics and issues. Instructor: Staff. One course.


110S. Introduction to Italian Civilization. CCI, CZ, FL The institutions and culture of Italy throughout the centuries. Instructor: Dainotto, Fellin, Finucci, or Hardt. One course.


114. Major Italian Authors. ALP, CCI, CZ, FL Textual studies of the most important authors of the Italian literary tradition. Authors may vary. At times the course devoted to single author: Dante, Boccaccio, Pirandello; or, two or three authors studies together in the context of the culture of their time or of their influence on subsequent centuries or authors: Petrarch and Petrarchist phenomenon of the sixteenth century, Morante and the historical novel, Machiavelli and Vico. Not open to students who have taken this course as Italian 165S. Instructor: Finucci and staff. One course.

115. Topics in Italian Literature and/or Culture. ALP, CCI, CZ, FL Topics to be announced. Survey course on Italian literature and culture required for Italian major or minor. Instructor: Finucci. One course.

116. Italian Short Fiction. ALP, CCI, FL Novellas and short stories drawn from different periods of Italian literature. Instructors: Dainotto, Eisner, Hardt, or Finucci. One course.

118S. Italian Popular Culture. ALP, CCI, FL The formation of Italian popular culture in different historical periods. Emphasis varies; attention paid to serial novels, detective fiction, films, prints, paintings, and popular music. May include older forms of popular culture such as the romances of chivalry, the 'commedia dell'arte,' carnivals, and melodrama. Instructor: Dainotto or Finucci. One course. C-L: International Comparative Studies 181CS

120. History of the Italian Language. CCI, CZ, FL, SS Origins and evolution of the Italian language from Latin to contemporary varieties. Diachronic linguistic analysis set in the political, social, and ideological contexts that influenced the development of Italy's national language. Analysis of texts that reflect changes in language usage and attitudes toward language. Instructor: Fellin. One course.

121S. Italian Poetry. ALP, CCI, FL An introduction to major poets, movements, and techniques of the Italian lyrical tradition. May include different historical periods. Instructor: Dainotto, Eisner, or Hardt. One course.

123. Aspects of Italian Literature. ALP, CCI Concentration on single authors, periods, genres, regions, or themes. (Taught in Italy.) Instructor: Staff. One course. C-L: International Comparative Studies
127. Italian Visions of America: From Columbus to September 11. ALP, CCI, FL
Introduction to Italian works, ranging from poetry to music, from philosophy to movies, that have shaped the image and contours of what today is known as "America." Instructor: Dainotto. One course.

130. Topics in Italian Literature and Culture. ALP, CCI, CZ
Topics on single authors, genres, movements, or themes across centuries. Taught in English. Instructor: Dainotto, Eisner, Finucci, Hardt. One course.


131. Topics of Italian Civilization. CCI, CZ, FL
A cross-cultural study of Italy through history, culture, people, and institutions. Topics may vary each semester. Instructor: Staff. One course. C-L: International Comparative Studies

132. Italian Cinema. ALP, CCI
Introduction course to Italian cinema including silent films, Neorealism, fascist productions, Commedia all'italiana and experimentalism. Reading and discussions in English. Instructor: Dainotto and staff. One course. C-L: Literature 112K, Film/Video/Digital 111E, Visual Studies 126A, Theater Studies 172A


134. Aspects of Renaissance Culture. ALP, CCI, CZ
One course. C-L: see Medieval and Renaissance Studies 115; also C-L: Art History 149, History 148A, English 123E


135. Italian Women Writers. ALP, EI
Ethical and political issues raised in representative works by women. Topics include: marginalization of women writers in the literary canon, critical perception and self-perception of women authors, and beliefs about women in both the social and the cultural space. Taught in English. Not open to students who have taken this course as Italian 115 or ICS 181C. Instructor: Dainotto, Finucci, or Hardt. One course. C-L: International Comparative Studies 182B, Women's Studies


136. Cities and City Life in Italy. ALP, CCI, CZ
Aspects of social, literary, and cultural history of the Italian cities Venice, Florence, Rome, or Milan, as anchors of larger geographical areas, cities in a specific historical period, or famed artistic centers. Taught in English. Not open to students who have previously taken this course as Italian 128. Instructor: Finucci and staff. One course. C-L: History 175B, International Comparative Studies 128, Cultural Anthropology 137

136P. City and City Life in Italy–Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 136. Further information available from instructor. Instructor: Finucci.

137. Modernism, Avant-gardism, and Visual Art, 1900-1945. ALP, CCI, CZ
One course. C-L: see Art History 167; also C-L: International Comparative Studies, Women's Studies

142S. Italian Literature. ALP
Topics to be announced. Taught in English. Open to juniors and seniors. Instructor: Staff. One course.
145SP. Topics in Medieval and/or Early Modern Literature and Culture -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 145S. Further information available from instructor. Instructor: Eisner, Finucci.


144P. Sex, Death, and a Little Love: Boccaccio's Decameron--Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 144. Further information available from instructor. Instructor: Eisner.

145S. Topics in Medieval and/or Early Modern Literature and Culture. ALP, CCI Topics may include: the Italian Middle Ages, the Renaissance, the baroque, humanism. Taught in English. Instructor: Finucci. One course. C-L: Medieval and Renaissance Studies 161S

145SP. Topics in Medieval and/or Early Modern Literature and Culture--Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 145S. Further information available from instructor. Instructor: Eisner, Finucci.


148SP. Italians Abroad, Foreigners in Italy: Seeing and Being Seen--Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 148S. Further information available from instructor. Instructor: Finucci.

151S. The Italian Theater. ALP, CCI Introduction to the Italian theatrical tradition. Content varies; the course may be taught by topic, it may concentrate on a specific period, or it may focus on a major author. Taught in English. Instructor: Dainotto or Finucci. One course. C-L: Theater Studies 120S

151SP. The Italian Theatre--Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 151S. Further information available from instructor. Instructor: Dainotto, Finucci.

155S. Topics in Modern Literature and Culture. ALP, CCI Topics may include: the Enlightenment, romanticism, modernism, avant-garde. Taught in English. Instructor: Dainotto or Hardt. One course. C-L: Literature 146S

155SP. Topics in Modern Literature and Culture--Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 155S. Further information available from instructor. Instructor: Dainotto, Hardt.

160S. Italian Identities Between Europe and the Mediterranean. CCI, CZ The question of Italian identity from the perspective of the cultural divide between north and south. Northern Italy's attraction towards a technologically progressive Europe, and Southern Italy's yearning for the traditionally slower pace of Mediterranean civilization. Study of a
nation which does not possess a univocal vision of itself. Taught in English. Instructor: Dainotto. One course. C-L: International Comparative Studies 182CS

160SP. Italian Identities Between Europe and the Mediterranean --Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 160S. Further information available from instructor. Instructor: Dainotto.

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192. Research Independent Study. R See Italian 191. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

193. Research Independent Study. R See Italian 191. Open only to qualified seniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

194. Research Independent Study. R See Italian 191. Open only to qualified seniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

195. Topics in Italian Literature and Culture. ALP, FL Topics to be announced. Offered to students enrolled in Duke approved courses in Italy. Instructor: Staff. One course.

198. Honors Thesis. R Preparation and writing of research paper for "departmental distinction." Consent of both the instructor and the director of undergraduate studies required. See section on honors in Bulletin. Instructor: Staff. One course.

200. Topics in Italian Literature and Culture Abroad. Topics to be announced. Offered to students enrolled in Duke Study Abroad in Italy. Instructor: Staff. One course.

201S. Topics in Italian Linguistics. ALP, CCI, SS An interdisciplinary study of selected topics, such as history of linguistic theories, language and world view, semiotics, ethnolinguistics, language and cinema, language and identity, discourse and conversation analysis. Taught in English. Instructor: Fellin. One course.

201SP. Topics in Italian Linguistics -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 201S. Further information available from instructor: Instructor: Fellin.

202S. Topics in Italian Studies. CCI, CZ Specific aspects of Italian history, civilization, culture, and institutions. Topics may vary. Taught in English. Instructor: Dainotto, Eisner, Finucci, Hardt. One course.


205S. Topics in Dante Studies. ALP, CCI, CZ Focus on a particular aspect of Dante's work. Taught in English. Instructor: Eisner. One course. C-L: Medieval and Renaissance Studies 205S

205SP. Topics in Dante Studies -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 205S. Further information available from instructor. Instructor: Eisner.

210S. Topics in Renaissance Studies. ALP, CCI, CZ Focus on a particular aspect of the Italian or European Renaissance. Taught in English. Instructor: Finucci. One course. C-L: Medieval and Renaissance Studies 210S, Art History 210S

210SP. Topics in Renaissance Studies --Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 210S. Further information available from instructor. Instructor: Finucci.

220S. Topics in Sexuality and Gender Studies. ALP, CCI The study of identity and difference and the representation of bodies, genders, and desires in mainstream and popular
Italian literature. May include different historical periods. Readings from classical and contemporary works, memoirs, letters, diaries, medical treatises, pamphlets. Taught in English. Not open to students who have taken this course as Italian 159S. Instructor: Finucci and staff. One course. C-L: Women's Studies 219S

220SP. Topics in Sexuality and Gender Studies -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 220S. Further information available from instructor. Instructor: Finucci and staff.

221S. Literary Guide to Italy. ALP, CCI, CZ A journey of Italy through literary, cinematic, and musical texts through Italy's sights and customs, as well as the place of Italy, both the real and imagined, in the aesthetics of the Grand Tour. Taught in English. Instructor: Dainotto. One course. C-L: Literature 280S, German 221S

221SP. Literary Guide to Italy -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 221S. Further information available from instructor. Instructor: Dainotto.

225S. Cinema and Literature in Italy. ALP, CCI A study of the relation between literature and film in Italy. Topics include: cinematic versions of novels, influence of literature and literary figures on the construction of an Italian cinematic imagination, effects of cinema on literature, women's fiction and the woman's picture, neorealism. Taught in English. Not open to students who have taken this course as Italian 170S. Instructor: Dainotto, Finucci, or Hardt. One course. C-L: International Comparative Studies 281ES, Film/Video/Digital

225SP. Cinema and Literature in Italy -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 225S. Further information available from instructor. Instructor: Dainotto, Finucci, or Hardt.

230S. Antonio Gramsci and the Marxist Legacy. CCI, CZ, SS Gramsci's reinterpretation of Marxism in the context of fascist Italy. The uses of Gramsci's key concepts--subaltern, hegemony, dominance, popular culture, Americanism, Southern question--in other cultural/historical contexts, such as Indian subaltern historiography, British cultural studies or American literary studies. Taught in English. Instructor: Dainotto. One course. C-L: Literature 284S

230SP. Antonio Gramsci -- Preceptorial. A preceptorial, in Italian, requiring concurrent enrollment in Italian 230S. Further information available from instructor. Instructor: Dainotto.

PORTUGUESE (PORTUGUESE)

1. Elementary Portuguese I. FL Introduces the basic elements of the language and includes an exposure to some aspects of Portuguese-speaking cultures. Aural comprehension, speaking, reading, and writing skills receive equal attention. Conducted in Portuguese, using a communicative approach. Five class meetings a week. Instructors: Damasceno and staff. One course.

2. Elementary Portuguese II. FL Builds on the elements of language acquired in Elementary Portuguese 1; enrollment in Portuguese 2 presupposes acquisition of the contents covered in Portuguese 1. Speaking, reading, and writing skills emphasized; exposure to some aspects of Portuguese-speaking cultures an important component. Conducted entirely in Portuguese, using a communicative approach. Five class meetings a week. Prerequisite: Portuguese 1 or consent of instructor. Instructors: Damasceno and staff. One course.

53. Portuguese as a Second Romance Language. FL Designed for undergraduate and graduate students who are fluent, or native speakers, in another Romance language. Prepares students to enter intermediate sequence Portuguese courses at Duke. Most grammar and textbook work is done outside of class, freeing class time for more communicative activities. Conversation sessions provide intensive review of grammar focused through discussion on
issues raised in film, newspapers, readings, music. Meets five times a week. Instructor: Damasceno or staff. One course.

63. Intermediate Portuguese. CZ, FL Intensive language review of reading, writing, and oral practice, with increased attention to grammatical variety and accuracy. Cultural component emphasized through short readings, videos, music. Prerequisite: successful completion of Portuguese 2, 53, or consent of instructor. Instructor: Damasceno or staff. One course.

76. Advanced Intermediate Portuguese. CZ, FL An advanced grammar review complemented by oral practice, composition, videos, and selected literary readings. Guided essay writing on topics related to the readings and videos. Second part of an intermediate sequence; suggested as preparation for 100-level courses. Prerequisites: Portuguese 63 or consent of instructor. Instructor: Damasceno. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Portuguese. CCI, FL Topics differ by section. Instructor: Staff. One course.

103. Conversational Brazilian Portuguese Abroad. ALP, CCI, CZ, FL, W Grammar review based on weekly essays and conversational units directly related to experiences and excursions of Duke in Brazil. Prerequisites: Portuguese 53 or equivalent, or consent of director. Instructor: Damasceno and staff. One course.

108S. Advanced Colloquial Portuguese. CCI, FL, W Advanced conversation and composition through the study of colloquial Portuguese as a catalyst of popular culture; extensive comparisons of popular sayings, expressions, and proverbs; emphasis on oral communication. Contemporary short texts, "telenovelas," video, music, and Internet sources. Highlights differences between Portuguese as spoken in Portugal and Brazilian Portuguese (syntax, vocabulary, spelling); transmits a sense of African, Azorian, and Asian Portuguese, and United States Portuguese communities. Prerequisites: Portuguese 63 or consent of instructor. Instructor: Damasceno or staff. One course.

111S. Research Seminar in Citizenship and Culture. CZ, FL, R, W Interdisciplinary research seminar that allows students to practice intermediate to advanced language skills and develop individual research projects on contemporary issues in the Portuguese-speaking world as they are perceived and discussed from within these countries. Focus on the changing nature/rights of citizenship in Lusophone world and/or relationship of Portuguese speaking country to global issues of citizenship. Research paper required; research resources concentrate on journalistic and other media sources, including the Internet. Prerequisite: Portuguese 76 or consent of instructor. Instructor: Damasceno. One course. C-L: International Comparative Studies 130AS, Latin American Studies

113S. Introduction to Brazilian Literature. ALP, CCI, FL, W Major writers and movements of Brazilian literature from the period of discovery to present, using short texts, novels, plays, short stories. Includes early letters of discovery, Machado de Assis, Mario de Andrade, Clarice Lispector. Instructor: Damasceno. One course. C-L: International Comparative Studies 130G, Latin American Studies

139S. Portugal, Portuguese-Speaking Africa, and Brazil: Old Problems, New Challenges. CCI, CZ Readings from multidisciplinary sources and films emphasizing questions/issues regarding the Portugal-Africa-Brazil triangle. The history and geography of Lusophone cultures from the inception of the Portuguese state to the present. Promotes a critical vision of the Portuguese-speaking nations' relationships as a common language group with other non-Portuguese-speaking nations more closely connected to the individual nations of the Lusophone world. Taught in English. Instructor: Damasceno or staff. One course.

140S. Brazilian Popular Culture. ALP, CCI, CZ, FL Integrates course readings, guest lectures with on-site research into popular culture and social movements, film theatre and the visual arts. Core course for Duke in Brazil. Taught in Portuguese. Students are enrolled concurrently in Portuguese 103. Consent of instructor required. Instructor: Damasceno and

143S. Performing Brazil: Issues of Performative Cultures. ALP, CCI, W Same as 144S, except taught in English, with a preceptorial in Portuguese available for students seeking credit towards the Spanish major. Special topics course involving debates regarding the concept of Brazil as a performative culture; issues of race, gender, and sexual identity as portrayed in cinema, theater, dance, and television; issues of regional and class identity in the media. Topics vary according to term. Instructor: Damasceno. One course. C-L: International Comparative Studies 130GS

143SP. Performing Brazil: Issues of Performative Cultures--Preceptorial. A preceptorial requiring concurrent enrollment in Portuguese 143S. Additional information available from instructor. Instructor: Damasceno.

144S. Performing Brazil: Issues of Performative Cultures. ALP, CCI, FL, W Special topics course involving debates regarding the concept of Brazil as a performative culture: issues of race, gender, and sexual identity as portrayed in cinema, theater, dance, and television; issues of regional and class identity in the media. Topics vary according to term. Instructor: Damasceno. One course.

170C. Afro-Brazilian Culture and History. CCI, CZ, R One course. C-L: see History 170C; also C-L: African and African American Studies 170, Latin American Studies

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192. Research Independent Study. R See Portuguese 191. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

193. Research Independent Study. R See Portuguese 191. Open only to qualified seniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

194. Research Independent Study. R See Portuguese 191. Open only to qualified seniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

202S. Topics in Lusophone Literature and Culture. ALP, CCI, R Exploration of topics of cultural formation in the Portuguese-speaking world that emphasize autochthonous cultural theory. Examples include: Brazilian popular culture, Literatures of Resistance, Lusophone Africa and Independence, Portugal Post-Salazar. A graduate-level course open to juniors and seniors. Level of Portuguese required varies with semester topic; students should consult instructor. Prerequisite: 100-level Portuguese course or consent of instructor. Instructors: Damasceno and staff. One course.

248S. Transatlantic Cultures: Narratives of Discovery, Empire, Decolonization, and Europeanization. FL, R Explores, through literature, film, and theoretical readings, basic themes of Portuguese culture. Focuses on narratives of discovery, empire, decolonization, the admixture of cultures, and concerns of contemporary Portugal within the European Union. Questions of Portuguese identity during the epoch of discovery and expansion; the Portuguese presence in Asia, Africa, and Brazil; the role of postcolonial Portugal and Lusophone culture within the European context. Taught in Portuguese, translations of readings available. Prerequisite: 100-level Portuguese course or consent of instructor. Instructors: Damasceno and staff. One course.

SPANISH (SPANISH)

1. Elementary Spanish 1. FL Introduces the basic elements of the language and includes exposure to aspects of Spanish-speaking cultures. Equal attention to aural comprehension, speaking, reading, and writing skills conducted entirely in Spanish using a task-based approach. Five class meetings a week. Not open for credit to students who have had three
or more years of Spanish in high school. Prerequisite: No previous college study of Spanish, or no more than two years of high school Spanish, or appropriate language placement score. Consent of Director required. Instructor: Paredes and staff. One course.

2. Elementary Spanish 2. FL This course builds on the elements of the language acquired in Elementary Spanish 1; enrollment in Spanish 2 presupposes acquisition of the contents covered in Spanish 1. Speaking, reading, and writing skills emphasized; exposure to Spanish-speaking cultures. Classes conducted entirely in Spanish, using a task-based approach. Five class meetings a week. Prerequisite: Spanish 1 or appropriate placement test score. Instructors: Paredes and staff. One course.

13. Duke in Mexico: Intensive Institute. FL Covers the basic elementary Spanish language curriculum (Spanish 1 and 2) in one summer session in Mexico. Develops aural comprehension, speaking, reading and writing skills; exposure to aspects of Spanish-speaking cultures. Taught in Spanish, using a task-based approach. Six hours per day of classroom instructions (M-F) and required extracurricular activities. Not open to students with more than one year of high school Spanish. Instructor: Staff. Two courses.

14. Intensive Elementary Spanish. FL Covers the basic elementary language curriculum (Spanish 1 and 2) in one semester. Aural comprehension, speaking, reading and writing skills. Exposure to Spanish-speaking cultures. Taught in Spanish, using a task-based approach. Not open to students who have had one year (or more) of Spanish in high school. Eight class meetings a week. Consent of instructor required. Instructors: Paredes and staff. Two courses.

15. Intensive Intermediate Spanish. CZ, FL Covers the intermediate Spanish language curriculum (Spanish 63 and 76) in one semester. Builds on the elements of the language acquired in the elementary sequence; enrollment in this course presupposes acquisition of Spanish 1 and 2 contents. Further development of the four language skills: listening, speaking, reading, and writing. Expanding range and sophistication of grammar usage and vocabulary. Exposure to Spanish-speaking cultures. Increasing ability to structure ideas in speaking and writing. Work with comprehension and production of texts of greater extension. Prepares students for 100-level Spanish courses. Eight class meetings a week. Instructor: Paredes and Staff. Two courses.


62. Intensive Study of Spanish. CZ, FL Practice in understanding, speaking, and reading; emphasis on spoken language patterns used in everyday life in Costa Rica, with special attention to cultural and environmental topics and issues. (Offered only at the Duke/Organization of Tropical Studies Undergraduate Program in Las Cruces, Costa Rica.) Prerequisite: Spanish 1-2, Spanish 12, or equivalent. Instructor: Staff. One course.

63. Intermediate Spanish. CZ, FL This course builds on the elements of the language acquired in the elementary sequence; enrollment in this course presupposes acquisition of Spanish 1 and 2 contents. Continued development of the four language skills: listening, speaking, reading and writing. Expanding range and complexity of grammar usage and vocabulary. Exposure to Spanish-speaking cultures. Prerequisite: Spanish 2 or 14, or appropriate placement test score. Instructors: Paredes and staff. One course.
76. **Advanced Intermediate Spanish. CZ, FL** This course builds on the elements of the language acquired in Spanish 1 through 63. Further development of the four language skills: listening, speaking, reading and writing. Expanding range and sophistication of grammar usage and vocabulary. Exposure to Spanish-speaking cultures. Work with comprehension and production of texts of greater extension and complexity. Prepares students for 100-level Spanish courses. Prerequisite: Spanish 63, or appropriate placement test score. Instructors: Paredes and staff. One course.

101. **Advanced Spanish Writing. CCI, FL, W** Development of composition skills related to expository and other forms of writing, focus on techniques for organizing information, vocabulary, editing, revising, rewriting and grammatical accuracy. Substantial work on the development of writing strategies through several short papers and a final long paper. This course is strongly recommended before enrollment in literature classes in Spanish. Prerequisite: Spanish 76, or appropriate AP, SAT II, or placement test score. Instructors: Paredes and staff. One course.

102. **Advanced Intensive Spanish. CCI, FL** Practice in understanding, speaking, reading, and writing Spanish; emphasis on spoken and written language patterns used in everyday life in Costa Rica, with special attention to cultural and environmental topics and issues. Open to advanced students of Spanish. (Taught in Costa Rica.) Instructor: Staff. One course.

103A. **Advanced Spanish Language Abroad. CCI, FL** Topics may vary. Instructor: Staff. One course.

104. **Advanced Spanish Grammar. CCI, FL** Intended to foster students' reflection about Spanish grammar and to consolidate students' knowledge of the system of rules underlying the Spanish languages. Special attention given to grammar in oral and written communication. Not open to students who have previously taken both Spanish 101 and 105. Prerequisite: Spanish 76 or appropriate placement test score. Instructors: Paredes and staff. One course.

104S. **Discussion of Readings. ALP** Instructor: Paredes and Staff. One course.

105. **Spanish for Oral Communication. CCI, FL** Development of effective strategies for oral communication. Use of language ranges from informal to formal situations and concrete to abstract topics. Focus on developing structured arguments and increasing linguistic accuracy. Does not count towards the Spanish major or minor; not open to students who have previously taken both Spanish 101 and 104 or Native Speakers of Spanish. Prerequisite: Spanish 76, or appropriate AP, SAT II, or placement test score. Instructors: Paredes and staff. One course.

106A. **Spanish for Health Professions: Interaction with the Latino Community. CCI, FL** Development of lexical and cultural repertoire in health fields. Students are expected to be involved in the Latino community at least 20 hours during the semester. Prerequisite: Spanish 76 (Advanced Intermediate Spanish) or the equivalent. Consent of instructor required. Instructor: Paredes or staff. One course.

106B. **Andean Oral Tradition. CCI, CZ, FL** Oral narrations of Bolivia, Ecuador, and Peru as a reservoir of indigenous traditional knowledge and wisdom. Taught in Spanish, with exposure to Aymara language. Prerequisite: Spanish 76 or equivalent. Consent of instructor required. Instructor: Staff. One course.

106CS. **Issues of Education and Immigration. CCI, FL, R** Explores issues of cultural assimilation, literacy, and access to educational opportunities for the growing Latino community in the United States. Students are expected to be involved in the Latino community at least 20 hours during the semester. Design, implement, and evaluate an original community-based research project. Prerequisite: Spanish 76 or equivalent. Consent of instructor required. Instructor: Paredes and staff. One course.

106ES. **Latino/a Voices in Duke, Durham and Beyond. CCI, CZ, FL, W** Current cultural, political, and social issues related to the construction and representation of Latino/a identity and community formation within a local and global context. Gateway Research Service-
Learning course. Students are expected to be involved in the Latino community at least 20 hours during the semester. Recommended that students take a 100-level Spanish course prior to enrolling in this course. Prerequisite: Spanish 76 or consent of instructor. Instructor: Staff. One course.

106S. The Making of Barcelona: Introduction to Catalan Language and Culture. CCI, CZ, FL. The historical making of Barcelona as expressed in its architecture (the Gothic, the Modernista Movement, Gaudi, the new architects), the visual arts (Miro, Picasso), and other cultural forms; an introduction to the culture of Catalonia as well as to the Catalan language. Taught in Spanish, with exposure to Catalan language. Prerequisite: Spanish 76 or equivalent required. Instructor: Staff. One course. C-L: International Comparative Studies 182GS

107. Advanced Grammar. CCI, FL. A systematic study of modern Spanish morphology and syntax. (Taught in Spain.) Not open to students who have taken Spanish 108S or 109S. Instructor: Staff. One course.

108S. Advanced Colloquial Spanish. CCI, FL. Colloquial Spanish as a catalyst of popular culture; extensive comparisons of English and Spanish popular sayings and proverbs; emphasis on oral communication. Prerequisite: two Spanish courses at the 100 level. Instructor: Garci-Gómez. One course.

109. Fundamentals of Spanish Linguistics. FL, SS. A comprehensive overview of the field of linguistics as it relates to Spanish. Starting from the question What does it mean to know Spanish?, the course reviews the areas of phonology, morphology, syntax, semantics, applied linguistics, and sociolinguistics. The main goal is to develop students' skills in analyzing data, forming and testing hypotheses, and arguing for the correctness of solutions. Individual topics investigated by students. Prerequisite: Spanish 101 or 104 or consent of instructor. Instructor: Staff. One course. C-L: Linguistics 122

109S. Topics in Spanish Linguistics. CCI, FL. Topics vary each semester. Specific themes related to social linguistics. Involves students' collecting and analyzing linguistic data, framing, and testing hypotheses. Service learning course; requires twenty hours per semester outside classroom. Consent of instructor required. Instructor: Paredes. One course. C-L: Linguistics 123S

110S. Introduction to Literary Analysis. ALP, FL, W. Different genres, including narrative, poetry, drama, essay and film. Texts drawn from different periods of Spanish and Spanish-American literature. Prerequisite: Spanish 76, or appropriate AP, SAT II, or placement test score. It is strongly recommended that students take Spanish 101 before enrolling in this course. Instructor: Staff. One course.

111. Introduction to Spanish Literature I. ALP, CCI, FL. Major writers of the Spanish literary tradition and the historical contexts from which they emerged: Middle Ages through the seventeenth century. Poetry, fiction, theater and essay and historical readings and film. Includes attention to Judaic and Islamic civilizations and expression in medieval Spain. Prerequisite: Spanish 101, 110S, or AP Spanish Literature score of 5. Instructor: Staff. One course. C-L: Medieval and Renaissance Studies 111B

112. Introduction to Spanish Literature II. ALP, CCI, FL. A survey of major writers and movements of the Spanish literary tradition in the eighteenth, nineteenth, and twentieth centuries. Prerequisite: Spanish 101, 110S, or AP Spanish Literature score of 5. Instructor: Staff. One course.

114S. Discussion of Readings. ALP, CCI, FL. Selected readings on topics concerning the different national literatures of Spain and Latin America. Open only to freshman and sophomores. Prerequisite: Spanish 76 or placement/achievement score of 630+. Instructor: Staff. One course.

115. Introduction to Spanish-American Literature. ALP, CCI, FL. First part of a two semester sequence providing a survey of major writers and movements from the period of discovery to the present day. The periods of conquest, colonial rule, and early independence.
Includes works by native Indian, "mestizo", and women writers. Prerequisite: Spanish 101, 110S, or AP Spanish Literature score of 5. Instructor: Staff. One course. C-L: International Comparative Studies 130H, Latin American Studies

116. Introduction to Spanish-American Literature. ALP, CCI, FL Continuation of Spanish 115. From "modernismo" to the contemporary period. Prerequisite: Spanish 101, 110S, or AP Spanish Literature score of 5. Instructor: Staff. One course. C-L: Latin American Studies, International Comparative Studies

117S. Spanish-American Short Fiction. ALP, CCI, FL The development of the novella and short story from the nineteenth century to the twentieth century in Spanish America: Marti, Dario, Quiroga, Borges, Cortazar, Garcia Marquez, Allende, Ferre, Carpentier, and others. Not open to students who have taken Spanish 117A,S. Instructor: Staff. One course. C-L: Latin American Studies

121. Latin-American Literature in Translation. ALP, CCI Fictional and poetic works of the last thirty years that have made an impact on world literature. Critical reflection on political and ethical issues. Taught in English. Instructor: Dorfman. One course. C-L: Latin American Studies, International Comparative Studies

121AD. Latin American Literature in Translation. ALP, CCI One course. C-L: see Literature 161AD; also C-L: International Comparative Studies 131CD

122S. Topics in Spanish and/or Latin-American Literatures and Cultures. ALP, CCI, CZ A cultural critique focusing on specific themes to be announced. Topics may include: cultural differences; relations between languages and literatures; national minorities and multiculturalism; postcolonialism; minor literatures; globalization. Taught in English. Instructor: Staff. One course.

124. Special Topics in Latin American Studies. A problem-oriented course integrating approaches from different disciplines. Topics and disciplines vary from year to year. For juniors and seniors. Required capstone course for students seeking the certificate in Latin American Studies. Instructor: Staff. One course.


127. The Idea of Latin America. CCI, CZ The idea of Latin America, as invented and created by European imperial powers and maintained by United States emerging imperialism at the turn of the twentieth century, in complicity with local Creole and Mestizo elites. Perspective on the geo- and body-politics of knowledge being enacted by radical intellectuals, indigenous and Afro-social movements, and the Social Forum of the Americas, to open up a new understanding of the global order and global power relations today. Taught in English. Instructor: Mignolo. One course. C-L: Literature 162B, Cultural Anthropology 128A, Latin American Studies

128. The Art and Cultural History of Flamenco. ALP, CCI, CZ One course. C-L: see Dance 128

129S. What's Lost in Translation? Latin American Theater in English. ALP, CCI, CZ Dramatic texts and theatrical traditions of Latin American theatre within their historical context. Role of theater as a critique and force for social transformation, challenges involved in translating highly polemical works from one culture to another. Taught in English. Instructor: Damasceno. One course. C-L: Theater Studies 127S, International Comparative Studies 132S, Cultural Anthropology 135S

131. Topics of Hispanic Civilization. CCI, CZ, FL A humanistic, cross-cultural study of Spain or Spanish America through history, culture, people, and institutions. Topics may vary. Instructor: Staff. One course. C-L: International Comparative Studies

133S. Contemporary European Issues. CCI, CZ, FL An interdisciplinary seminar addressing topics pertaining to European culture, with special emphasis on Spain and its
relationship to the rest of Europe. Instructor: Staff. One course. C-L: Cultural Anthropology
182. International Comparative Studies

137. Topics in Contemporary Spanish Culture. CZ, FL (Taught in Spain.) Instructor: Garci-Gómez. One course. C-L: International Comparative Studies


142S. Spanish Literature. ALP, CCI, FL Various aspects of the literatures of Spain and Spanish-America with a cross-cultural perspective. Specific topics to be announced. Prerequisite: Spanish 111, 112, 115, or 116. Instructor: Staff. One course.

143. Spain: Special Topics Abroad. ALP, CCI, CZ, FL A special topics course on various aspects of Spanish art, cinema, painting, drama, and literature. Topics to be announced. (Taught in Duke-in-Madrid program). Instructor: Staff. One course.

144S. Duke in Andes: Special Topics. CCI, FL Various aspects of literatures and cultures of the Andes. Specific topics to be announced. Instructor: Staff. One course. C-L: Latin American Studies, International Comparative Studies

146S. Cinemas of the Caribbean. ALP, CCI, EI, FL Visual culture, film criticism, cultural theory, and critical textual analysis. Distinguishes Spanish-speaking Caribbean from other Creole-speaking, Francophone, Anglophone Caribbeans. Focuses on ethical and political questions involving politics, theories of space, historical genealogies, involved in filmic representations of sex and gender, race, and national(ist) Caribbeaness. Instructor: Adrian. One course.

147S. Spanish Avant-Gardes/Kino-Texts. ALP, CCI, EI, FL Examines ways in which Spanish avant-garde groups participated in trans-national experiments in film, writing, and related creative expressions in 1920s and 1930s economic and political crises across the world. Critical viewings and readings of works by select number of authors from the period. Focuses specifically on visual and textual culture, discussions and assignments emphasizing gender, class, and race representations and appropriations in relation to international geopolitical scenarios. Instructor: Adrian. One course.

148A. Dictators and Democrats in Modern Latin America. CCI, FL, R, SS One course. C-L: see Political Science 151A; also C-L: International Comparative Studies, Latin American Studies

149A. Spanish and/or Latin American Literature Abroad. ALP, FL Transfer credit for literature courses taught in non-Duke programs abroad. Special topics course. Instructor: Staff. One course.

149S. First-Year Seminar in Spanish. FL Seminar for first-year undergraduates with the desire and ability to take courses in literature, history, culture, art, cinema, or drama in Spanish at the 100-level. Topics vary each semester offered. For students thinking about majoring or minoring in the language, counts towards both. Prerequisite: SAT II score 660 or above, AP Language score of 5, or Literature score of 4 or 5. Heritage speakers or students who did high school work in Spanish encouraged to enroll after consulting with instructor. Instructor: Staff. One course.

151. Spanish Literature of the Renaissance and the Baroque. ALP, CCI, FL Selected works of sixteenth and seventeenth centuries in Spain with attention to their reflection of social, religious and political currents of the age, including: Pan-European cultural influences in the Renaissance, the effects of the New World encounter, the construction of identity through repression of Judaic and Islamic traditions, the relationship between tightened religious, social and political controls and the Baroque. Prerequisite: Spanish 111, 112, 115 or 116. Instructor: Greer or staff. One course. C-L: Medieval and Renaissance Studies 151B
152D. Women Writers of the Renaissance: Spain and England. ALP, CCI, CZ
Readings in the work of major women writers of the Spanish and English Renaissance: Zayas, Wroth, Navarre, and their literary contexts, Cervantes, Boccaccio, Sidney. Course includes in-depth examination of ideals and conflicts of English and Spanish culture, as well as consideration of the intersection in their writing between Christian (Protestant and Catholic) and Muslim civilizations. Instructor: Greer. One course. C-L: English 123FD, Medieval and Renaissance Studies 152D

153. Golden Age Literature: Cervantes. ALP, CCI, FL
Includes reading either selected works by Cervantes (dramas, novellas, and part of Don Quixote) or the Quixote in its entirety. Attention to the Roman and/or Arab conquests of Spain, Spanish relations with Algeria, England, Italy, and the Americas, the obsession with "limpieza de sangre" and the fate of Spain's "morisco" population. Prerequisite: Spanish 111, 112, 115 or 116. Instructor: Greer. One course. C-L: Medieval and Renaissance Studies 153B

162S. Literature and the Performing Arts II. ALP, CCI, FL
Selected literary works of the nineteenth and twentieth centuries that have been rendered in film or are presently on stage in Madrid. Attendance at performance of the films or plays. Instructor: Staff. One course.

168. The Generation of 1898. ALP, CCI, CZ, FL
Literary overview of the ideological, aesthetic, and political crisis in nineteenth-twentieth century Spain. Essays, novels, and poetry studied as cultural discourses, ideological constructions, and historiographic nomenclature, "Generacion del 98," which defined process of modernization in Spanish society. Consent of director of undergraduate studies required. Instructor: Gascón. One course.

169S. Topics in Nineteenth- and Twentieth-Century Spanish Literature. ALP, CCI, FL
Literary, cultural critique on a specific genre or theme to be announced. Emphasis on issues of gender, class, psychoanalysis, and/or popular culture. Prerequisite: Spanish 111, 112, 115, or 116. Instructor: Sieburth. One course.

171. Literature of Contemporary Spain. ALP, CCI, FL
A cultural critique of contemporary Spain (1936 to present) through different literary genres (novel, theater, poetry) with emphasis on gender, class, and historical nationalities. Includes Catalan, Galician, and Basque authors in Spanish translation. Prerequisite: Spanish 111, 112, 115, or 116. Instructor: Staff. One course. C-L: International Comparative Studies

173S. The Spanish Civil War: History, Literature, and Popular Culture. ALP, CZ, EI, FL, R
The Spanish Civil War of 1936-39 through literary and historical readings, art, music, and film. Special attention given to values held by supporters of each side, and how they put them into practice during and after the war. Consideration of international volunteers who fought in Spain for their own deeply-held values. Research paper and presentation required. Not open to students who have previously taken this course as Spanish 138S. Instructor: Sieburth. One course. C-L: History 171S

175S. Hispanic Literature and Popular Culture. ALP, CCI, FL
Works of Spanish and Latin American fiction that parody or rewrite popular culture genres such as serial novels, detective stories, or Hollywood films. Authors include Cervantes, Galdos, Borges, Marści, and Puig. Prerequisite: Spanish 111, 112, 115, or 116. Instructor: Sieburth. One course. C-L: Latin American Studies, International Comparative Studies

177S. 20th Century Latin American Photography. CCI, CZ, FL
181S. United States Latina/o Literatures and Cultural Studies. ALP, CCI Special topics in United States Latina/o literatures and cultural studies. Topics to be announced. Open to juniors and seniors. Counts towards the Spanish major, but can only be counted once towards the core course requirement; subsequent courses would count as related courses. Counts only once for the minor. Taught in both Spanish and English. Prerequisite: At least one course numbered 110-139 and taught in Spanish (excluding 120's courses taught in English), or consent of instructor. Instructor: Mignolo, Viego, or staff. One course. C-L: Latin American Studies

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

192. Research Independent Study. R See Spanish 191. Open only to qualified juniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.


194. Research Independent Study. R See Spanish 191. Open only to qualified seniors by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

195S. Honors Seminar. CCI, FL, R Basic training in research methodologies for students preparing to write an honors thesis on a Spanish or Latin American topic. Student presentations weekly on research topics and submission of substantial drafts of honors thesis proposals. (Taught in Madrid.) Consent of instructor required. Prerequisite: Two 100-level Spanish courses. Instructor: Staff. One course.

198. Honors Thesis. R Directed research and writing of honors thesis. Open only to qualified seniors pursuing the Graduation with Distinction track by consent of instructor and director of undergraduate studies. Instructor: Staff. One course.

200S. Seminar in Spanish Literature. ALP, FL Topics to be announced. Instructor: Staff. One course.


212S. Topics in Spanish Linguistics. FL, R, SS In-depth analysis of one area of Spanish linguistics. Topics may include Spanish phonology, Spanish syntax, discourse analysis, applied linguistics, or Spanish pragmatics. Small research projects with a hands-on approach required. Instructor: Staff. One course. C-L: Linguistics 212S

280. Emigrants and Immigrants: Spain in the Sixties and Now. ALP, CCI, FL A study of the cultural processes generated by two significant migratory movements in Spain: one in Catalonia in the 1960s and early 1970s, composed mostly of impoverished peasants coming from southern Spain; and the more recent global wave composed of Latin American, African, and Filipino immigrants to the affluent post-industrial areas. The seminar will use literary and cinematic texts, and testimonial narratives. Instructor: Staff. One course. C-L: International Comparative Studies

ROMANCE STUDIES (ROMST)

50. Duke-Administered Study Abroad: Special Topics in Romance Studies. CCI Topics differ by section. Instructor: Staff. One course.

81FCS. Topics in Romance Studies. ALP, CCI Topics vary each semester offered. Open only to students in the Focus Program. Instructor consent required. Instructor: Staff. One course.

150S. Topics in Romance Studies. ALP, CZ A comparative study of languages, literatures, and/or cultures related to Romance Studies. Instructor: Staff. One course.
151S. Eros in the Renaissance. ALP, CZ, R, W The theme of eros, desire or love, in Renaissance Italy and France, with attention to questions of sexuality and gender. Prose readings, lyric poetry, as well as Plato's Symposium and Ovid's Metamorphoses. Writing and Research intensive. Instructor: Schachter. One course. C-L: Medieval and Renaissance Studies 151S

170S. Gender and Cross Cultural Experience. CCI, R, SS One course. C-L: see Women's Studies 180S; also C-L: International Comparative Studies 103GS

200S. Seminar in Romance Studies. CCI Topics to be announced. Instructor: Staff. One course.

201S. Methods and Theories of Romance Studies. ALP, CCI, R Provides students in any PhD track of the department of Romance Studies with fundamental training in both general literary theory and in the specific methods of romance criticism. Instructor: Dainotto. One course. C-L: Literature 251S

202S. Research Methods In International Area Studies. CCI One course. C-L: see Latin American Studies 202S; also C-L: Asian and African Languages and Literature 207S, Cultural Anthropology 291S, Russian 203S, German 264S

250S. Issues in Second Language Acquisition. FL, R, SS Advanced applied linguistics course examining different areas of interests in the field of second language acquisition (SLA). Overview of main research areas in the field. Topics include: Language Testing, Action Research in SLA, Communicative Language Teaching, the role of classroom instruction in SLA, or the relationship between SLA research and foreign language learning. Students expected to become conversant with the research literature in the area and the different methodologies used in SLA research, carry out a classroom-based quantitative and/or qualitative research project, and produce a research paper that might be submitted to relevant conferences. Topics vary each year. Consent of instructor required. Instructor: Staff. One course.

286S. Inventing the Museum: Collecting and Cultural Discourses of the Nineteenth Century. ALP, CCI, CZ, R One course. C-L: see German 286S; also C-L: Art History 256S, History 286AS

THE MAJOR

Prerequisite. French 15 or 76, Italian 15 or 76, Spanish 15 or 76, or equivalents.
Majors are offered in French, Italian, and Spanish, and several different tracks are offered, as described below. The range of courses offered in Romance Studies may be taken toward fulfillment of the following general education curriculum requirements: CCI, EI, FL, QID, R, W, where indicated in the individual course entries. Majors are constituted of core courses and related courses. Core courses are departmental offerings taught in the language of the major. Related courses may be taken outside the department and not in the language of the major. Courses designated as ROMST may be counted as related courses.

French Major Requirements

The French major offers two tracks: (1) French Studies and (2) French and European Studies.

Prerequisites: French 76 or equivalent (Advanced Placement literature score of 4 or 5, Advanced Placement language score of 5, SAT II score of 640 or above, or comparable linguistic experience).

1) French Studies: A total of ten courses at the 100 level and above, eight of which must be from departmental offerings taught in French. These eight core courses must include five from the categories Historical Itineraries (120-139*) and Cultural Literary Itineraries (140-180*), of which at least two must be

* All courses from 113 to 179 should be considered to be of approximately equivalent difficulty.
from Historical Itineraries. The two remaining courses must be on French-related topics and may be taken either in the department or in other departments (consult the undergraduate major advisor concerning approved related courses).

2) **French and European Studies:** An interdisciplinary track requiring a total of ten courses at the 100 level or above, seven of which must be from departmental offerings taught in French. These seven core courses must include four from the categories Historical Itineraries (120-139*) and Cultural and Literary Itineraries (140-180*), at least one of which must be from Historical Itineraries. Three related courses on any French/European topic may be taken outside the department and not in the language of the major (consult the undergraduate major advisor concerning approved related courses). Proficiency in another European language is highly desirable.

**Italian Major Requirements**

The Italian major offers two tracks: 1) Italian Studies and 2) Italian and European Studies.

**Prerequisite:** Italian 76 or equivalent

(1) **Italian Studies:** A total of ten courses at the 100 level and above with an Italian designation. The Italian designation marks courses originating in the Italian program or crosslisted courses with Italian content offered by other departments or programs such as Art History, Cultural Anthropology, English, Film/Video/Digital Studies, History, International Comparative Area Studies, Literature, Medieval and Renaissance Studies, Music, Philosophy, Political Science, Religion, and Theater Studies. Romance Studies courses with Italian content can also be counted towards the major. Five of the ten courses must be taught in Italian, or have an Italian preceptorial (P) component (taught in Italian for students wishing to pursue Italian credit for the major) and must include three of the five core courses: Italian 108, 111, 112, 113, 114.

(2) **Italian and European Studies:** An interdisciplinary track requiring a total of ten courses at the 100 level or above. Five courses taught in Italian must be taken, three of which must be core courses (Italian 108, 111, 112, 113, 114), and the others must have an FL designation or include courses with an Italian preceptorial component (P). Five related courses on any Italian and/or European topic may be taken outside the department and not in the language of the major (consult the undergraduate major advisor for approval of related courses).

**Spanish Major Requirements**

The Spanish major offers four tracks: (1) Spanish Studies, (2) Spanish and Latin American Studies, (3) Spanish and European Studies, and (4) Spanish Latin American and Brazilian Studies.

(1) **Spanish Studies:** A total of ten courses at the 100 level and above, seven of which must be from departmental offerings taught in Spanish, except Spanish 105, which does not count toward the major. Spanish majors may count Spanish 104 or 107 toward the major, but not both. These seven core courses must include any two survey courses (111, 112, 115, 116) and at least three courses at the 140 level or above. The three remaining courses must be on Peninsular or Latin American topics and may be taken either in the department or in other departments (consult the undergraduate major advisor concerning approved related courses). A Brazilian or Lusophone literature or culture course taught in Portuguese at or above the 100 level offered by the department may be substituted for one of these three courses.
(2) **Spanish and Latin American Studies:** An interdisciplinary track requiring a total of ten courses at the 100 level and above, seven of which must be from departmental offerings taught in Spanish, except Spanish 105, which does not count toward the major. Spanish majors may count Spanish 104 or 107 toward the major, but not both. These seven core courses must include one survey course on Latin American literature (115 or 116), and at least three courses at the 140 level or above, two of which must be on Latin American topics. Three related courses on Latin American topics at or above the 100 level may be taken outside the department, and not in the language of the major. A Brazilian or Lusophone literature or culture course taught in Portuguese at or above the 100 level offered by the department may be substituted for one of these three courses. Proficiency in Portuguese is highly desirable (consult the undergraduate major advisor concerning approved related courses).

(3) **Spanish and European Studies:** An interdisciplinary track requiring a total of ten courses at the 100 level and above, seven of which must be from departmental offerings taught in Spanish, except Spanish 105, which does not count toward the major. Spanish majors may count Spanish 104 or 107 toward the major, but not both. These seven core courses must include one survey course on Peninsular topics (111 or 112) and at least three courses at the 140 level or above, two of which must be on Peninsular topics. Three related courses on a Spanish/European-related topic may be taken outside the department and not in the language of the major. Proficiency in another European language is highly desirable (consult the undergraduate major advisor concerning approved related courses). A Brazilian or Lusophone literature or culture course taught in Portuguese at or above the 100 level offered by the department may be substituted for one of these three courses.

(4) **Spanish Latin American and Brazilian Studies:** An interdisciplinary track requiring a total of ten courses at the 100 level or above, nine of which must be from departmental offerings taught in Spanish or Portuguese. Of these nine courses, three must be in Portuguese, and six in Spanish, excluding Spanish 104 and 105, which do not count towards the major. These nine core courses must include one survey course on Latin American literature (115 or 116) and one survey/period course on Brazilian literature (Portuguese 113 or a 200 level course). At least four courses must be at the 140 level or above, two in Spanish and two in Portuguese. The remaining course may be a related course on Latin American or Brazilian topic at or above the 100 level taught outside the department, and not in the languages of the major. (Consult the undergraduate major advisor concerning approved related courses.)

**Combined Major in French and Italian Requirements**

A combined major in French and Italian requires at least fourteen courses at the 100 level or above, which must be from departmental offerings.

**French:** The seven courses in French must include four from the categories Historical Itineraries (120-139) and Cultural and Literary Itineraries (140-180), at least one of which must be from Historical Itineraries. All courses must be taught in French.

**Italian:** The seven courses in Italian must be at the 100 level or above, at least two of which must be at the 140 level or above. Five of these courses must be taught in Italian.

**Combined Major in French and Spanish Requirements**

A combined major in French and Spanish requires at least fourteen courses at the 100 level or above, which must be from departmental offerings taught in French or Spanish. One course taught in Portuguese can be substituted for a Spanish course.
French: The seven courses in French must include four from the categories Historical Itineraries (120-139) and Cultural and Literary Itineraries (140-180), at least one of which must be from Historical Itineraries.

Spanish: The seven courses in Spanish will depend on the track chosen, Spanish Studies or Spanish and Latin American Studies:

Spanish Studies: The seven courses will include any two survey courses (111, 112, 115, 116) and at least three courses at the 140 level or above;

Spanish and Latin American Studies: The seven courses must include one survey course on Latin American literature (115, 116) and at least three courses at the 140 level or above, two of which must be in Latin American Studies.

All courses must be taught in Spanish.

Combined Major in Italian and Spanish Requirements

A combined major in Italian and Spanish requires at least fourteen courses at the 100 level or above, which must be from departmental offerings. One course taught in Portuguese can be substituted for a Spanish course.

Italian: The seven courses in Italian will at the 100 level or above, at least two of which must be at the 140 level or above. Five of these must be taught in Italian.

Spanish: The seven courses in Spanish will depend on the track chosen, Spanish Studies or Spanish and Latin American Studies:

Spanish Studies: The seven courses will include any two survey courses (111, 112, 115, 116) and at least three courses at the 140 level or above;

Spanish and Latin American Studies: The seven courses must include one survey course on Latin American literature (115, 116) and at least three courses at the 140 level or above, two of which must be in Latin American Studies.

All courses must be taught in Spanish.

Departmental Graduation with Distinction

Qualified students may apply for Graduation with Distinction. The application deadline is preregistration for the fall semester of the senior year. Further information may be obtained from the director of undergraduate studies or the assistant to the director.

THE MINOR

Minors are offered in French, Italian, and Spanish.

French

Requirements: A total of five courses from departmental French offerings numbered 100 or above and taught in French. These must include three courses from the categories Historical Itineraries (120-139) and Cultural and Literary Itineraries (140-180), of which at least one must be from Historical Itineraries. (N.B.: all courses from 113 to 179 should be considered to be of approximately equivalent difficulty.)

Italian

Requirements. A total of five courses from departmental Italian offerings numbered 100 or above. These must include at least one of the five core courses (Italian 108, 111, 112, 113, 114). Three of the courses must have an FL designation or include courses with an Italian preceptorial component (P).

Courses 100-129 are taught in Italian and have an FL designation. Courses 130 and above are taught in English and are open to students without previous study on Italian. Students desiring an Italian component can enroll in the P section of those courses and are required to do their coursework in Italian.

Majors and minors are also encouraged to take advantage of 200-level course offerings.
Spanish

Requirements. A total of five courses from departmental Spanish offerings numbered 100 or above, except Spanish 105; Spanish 104 or 107 may be counted, but not both. These must include one survey course (111, 112, 115, or 116) and at least two courses at the 140 level or above. All five courses must be taught in Spanish.

STUDY ABROAD

Students are strongly urged to study abroad since this is the best way to achieve language proficiency and to acquire knowledge of a country's culture. Courses taken abroad count toward the core and/or related courses as follows:

I. Department-Administered Programs
   A. Duke-in-France. Major: All courses may be counted toward the major. A maximum of three courses per semester may be counted toward the core-course requirement. Minor: A maximum of two courses per semester may be counted.
   B. Duke-in-Madrid. Major: All courses may be counted toward the major. Credit distribution may vary according to students’ needs, with a maximum of three courses counting toward the core course requirement. For students remaining a second semester, two additional courses may be counted as core courses; the rest may be counted as related courses. Minor: A maximum of two courses may be counted.
   C. Duke-in-the-Andes. Major: All courses may be counted toward the major. A maximum of three courses may be counted toward the core-course requirement; others may be counted as related courses. Minor: A maximum of two courses may be counted.

II. Duke-Administered Semester Programs (Office of Study Abroad)
   Duke-Administered Semester Programs in English (Duke in-Florence; Duke-in-Venice). Major: a maximum of three courses per semester may be counted as related courses. Minor: A maximum of one course may be counted toward the core-course requirement.

III. Non-Duke-Administered Semester Programs
   Major: A maximum of two courses per semester may be counted toward the core-course requirement. Minor: One course per semester may be counted.

IV. Non-Duke-Administered Semester Programs in Italy (taught in Italian)
   Major: A maximum of two courses per semester may count toward the core-course requirement and a maximum of one may count as a related course. Minor: a maximum of two courses per semester may count.

V. Duke-Administered Summer Programs (Office of Study Abroad)
   A. Duke-Administered Summer Programs in the Language
      1) Duke-in-Barcelona; Duke-in-Spain. Major: Two courses may be counted toward the core-course requirement. Minor: Two courses may be counted.
      2) Duke-in-Paris. Major: Two courses may be counted toward the core-course requirement. Minor: Two courses may be counted.
      3) Duke-in-Brazil. Spanish Latin American & Brazilian Studies Major: Two courses may be counted. Spanish Studies, Spanish & Latin American Studies, or Spanish & European Studies Major: One course may be counted.
4) **Duke-in-Mexico.** Intensive Elementary & Intermediate Spanish

B. **Duke-Administered Summer Programs in English (Duke-in-Venice).**
   *Major or Minor:* One course may be counted toward the core-course requirement.

VI. **Non-Duke-Administered Summer Programs**
   *Major:* One course may be counted toward the core-course requirement. *Minor:* One course may be counted.

**Russian**

For courses in Russian, see “RUSSIAN (RUSSIAN)” on page 536, in Slavic and Eurasian studies.

**Study of Sexualities (SXL)**

Associate Professor Wilson (Women’s Studies), *Director*

A certificate, but not a major, is available in this program.

The Program in the Study of Sexualities offers an interdisciplinary course of study that introduces students to critical analyses of the various expressions of sexuality in societies around the world, both past and present. Such expressions encompass a wide range from heterosexuality to homosexuality and include other erotic desires, sexual relationships, and gender roles. Critical analyses concern how sexuality is formed, defined, and regulated by biological and social forces.

Students must take as an introductory course Study of Sexualities 115S, and five additional courses, one of which must be a special senior seminar, Study of Sexualities 195S, designed mainly for program participants. Of the total six courses, no more than three can originate in a single department, and four must be at or above the 100 level. Appropriate courses may come from the list given below and may include other courses (new courses, special topics courses, and independent study) as approved by the director. Regular courses are described under the listings of the various departments. Students may also wish to take advantage of house courses offered on topics in this area although house courses cannot satisfy the requirements of the program.

**49S. First Year Seminar.** New concepts and themes in the Study of Sexualities. Topics vary each semester. Instructor: Staff. One course.

**115S. Introduction to Study of Sexualities.** CZ Topics include homosexuality and theory, history, law, religion, education, the arts and literature, the military, and the health sciences. Instructor: Staff. One course. C-L: Women's Studies 109S

**120. Selected Topics.** Lecture version of Study of Sexualities 120S. Topics vary each semester offered. Instructor: Staff. One course.

**120S. Seminars in Selected Topics.** Topics vary each semester offered. Instructor: Staff. One course.

**195S. Senior Seminar in Study of Sexualities.** CCI, R, SS Advanced research course for students pursuing the certificate in Study of Sexualities. Topics vary by semester. Prerequisite: Study of Sexualities 115. Instructor: Staff. One course. C-L: Women's Studies

**PROGRAM COURSES OFFERED REGULARLY**

**Cultural Anthropology**
108. Fantasy, Mass Media, and Popular Culture
113. Gender and Culture
191J. Gender and Sexuality in Latin America

**Dance**
175. Gender in Dance and Theatre

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534 Courses and Academic Programs
English
124S. Sexualities in Film and Video

Film/Video/Digital
115S. Sexualities in Film and Video

International Comparative Studies
101E. Gender and Culture
103E. Fantasy, Mass Media, and Popular Culture
130B. Gender and Sexuality in Latin America

Literature
115S. Sexualities in Film and Video
152S. Love, Marriage, and Adultery in Nineteenth Century European Literature
184S. Feminist Classics

Medieval and Renaissance Studies
234A. Early Christian Asceticism

Political Science
187. Politics and the Libido

Psychology and Neuroscience
177S. Human Sexuality

Religion
125. Women and Sexuality in the Christian Tradition
234. Early Christian Asceticism

Sociology
118. Sex, Gender, and Society
149. Sexuality and Society

Theater Studies
132. Gender in Dance and Theatre

Visual Studies
110B. Fantasy, Mass Media, and Popular Culture
121CS. Sexualities in Film and Video

Women's Studies
111. Gender in Dance and Theatre
117. Gender and Culture
161S. Money, Sex and Power
189. Gender and Sexuality in Latin America

Slavic and Eurasian Studies

Associate Professor Gheith, Chair; Associate Professor of the Practice Maksimova, Director of Undergraduate Studies; Professors Andrews and Holmgren; Assistant Professor Göknar; Professor of the Practice McAuliffe; Associate Professors of the Practice Flath and Van Tuyl; Research Scholar Mickiewicz; Affiliated Faculty: Professor Miller (history); Associate Professor Tetel (English); Professor Emeritus Lerner (history); Adjunct Associate Professor Newcity

Two majors and three minors are available in this department.

The Department of Slavic and Eurasian Studies has a strong commitment to increase the language proficiency of its students regardless of their level at matriculation, to facilitate deep knowledge of the cultural context of each language represented, to help students develop their own scholarly interests and research abilities, and to acquaint students with trends in literary, linguistic, and cultural theory. Areas of specialization include nineteenth and twentieth century Russian and Soviet literature, Turkish and Polish language and literature, semiotics, gender studies, film and media studies, legal and business Russian language, translation, Slavic linguistics, contemporary Russian, Polish, and Turkish literature, scientific and scholarly Russian language, stylistics, and Russian, Polish, and Turkish cultural history. Languages taught include Russian, Turkish, Polish, and Romanian. Other Slavic languages occasionally taught include Ukrainian and Hungarian.
Resources for study include a state-of-the-art language laboratory with video facilities and a humanities computing facility, reception of daily Russian television programming, and an exchange program with St. Petersburg University. The department also hosts a Focus seminar and maintains a cooperative relationship with the Duke Linguistics Program, the Program in Literature, Women's Studies, Cultural Anthropology, and the Center for Slavic, Eurasian and East European Studies, as well as with related programs at the University of North Carolina at Chapel Hill.

RUSSIAN (RUSSIAN)

1. Elementary Russian. FL Introduction to understanding, speaking, reading, and writing. Study of contemporary Russian language and important elements of Russian culture. Instructor: Van Tuyl. One course.

2. Elementary Russian. FL Introduction to understanding, speaking, reading, and writing. Study of contemporary Russian language and important elements of Russian culture. Second half of Russian 1, 2. Prerequisite: Russian 1. Instructor: Van Tuyl. One course.


10. Accelerated Russian Language and Culture I. FL Accelerated study of contemporary Russian language and important elements of Russian culture. Intended for students with no previous knowledge of Russian interested in achieving significant proficiency in speaking, reading, writing, and comprehension based on cultural constructs in one semester of study. Includes significant use of technology to enhance learning. Instructor: Staff. One course.


49S. First-Year Seminar. CCI Topics vary each semester offered but are restricted to the study of literature, linguistics, and culture in the Slavic world. Instructor: Staff. One course.

61S. Intermediate Russian Language and Culture. CZ, FL Intensive classroom practice in phonetics, conversation, and grammar. Focus on literature and films, with museum and theater performance component. (Taught in St. Petersburg in Russian and English depending on placement.) Prerequisite: Russian 2 or equivalent. Instructor: Staff. One course.

62S. Intermediate Russian Language and Culture. CZ, FL Continuation of Russian 61S. (Taught in St. Petersburg in Russian and English depending on placement.) Prerequisite: Russian 61S or equivalent. Instructor: Staff. One course.

63. Intermediate Russian I. FL Intensive classroom and laboratory practice in spoken and written patterns. Reading in contemporary literature. Prerequisite: Russian 1 and 2, or two years of high school Russian. Instructor: Flath. One course.

64. Intermediate Russian II. FL Intensive classroom and laboratory practice in spoken and written patterns. Reading in contemporary literature. Prerequisite: Russian 1, 2 and 63 or equivalent. Instructor: Flath. One course.

66. Intermediate Russian Conversation. FL Consolidation of oral skills. Intensive conversation on a broad range of topics. Prerequisite: Russian 1 and 2, or equivalent. Instructor: Staff. Half course.

67. Intermediate Russian Conversation. FL Continuation of Russian 66. Prerequisite: Russian 66 or equivalent. Instructor: Staff. Half course.
70. Intensive Intermediate Russian. FL Russian 63 and 64 combined. Two meetings daily, as well as daily computer and language laboratory work. Instructor: Staff. Two courses.


101S. Contemporary Russian Composition and Readings. CCI, FL Advanced grammar and syntax with intense composition component. Analytical readings in the original. Prerequisite: Russian 63 and 64, or equivalent. Instructor: Staff. One course.

102S. Contemporary Russian Composition and Readings. CCI, FL Continuation of Russian 101S. Prerequisite: Russian 101S. Instructor: Staff. One course.

103S. Studies in the Russian Language and Culture. CCI, CZ, FL Analytical readings including grammatical and textual analysis. Additional work in phonetics and conversation. Literature, films, museums, and theater performances central for analysis and written assignments. (Taught in St. Petersburg in Russian.) Prerequisite: Russian 64 or equivalent. Instructor: Staff. One course. C-L: International Comparative Studies

104S. Studies in the Russian Language and Culture. CCI, CZ, FL Continuation of Russian 103S. Prerequisite: Russian 103S or equivalent. Instructor: Staff. One course. C-L: International Comparative Studies

105. Third-Year Russian Conversation. CCI, FL Conversation course for students enrolled in Russian 101. Not open to students currently taking Russian 63 or Russian 196. Instructor: Staff. Half course.

106. Third-Year Russian Conversation. CCI, FL Continuation of Russian 105. Conversation course for students enrolled in Russian 102. Not open to students currently taking Russian 64 or Russian 196. Instructor: Staff. Half course.

107S. Russian Phonetics. CCI, FL Analysis of contemporary standard Russian literary pronunciation, phonology, and intonational structures. Prerequisite: Russian 64 or consent of instructor. Instructor: Staff. One course.

108S. Soviet Civilization: History and Its Mythologies. ALP, CCI, CZ The most significant concepts, events, and personages of Russian and Soviet history through the prism of Soviet and post-Soviet official and popular culture, literatures, the arts, and cinema. Topics include: proletarian dictatorship and woman's liberation, the 'Russian Idea' and the 'struggle for peace,' the October Revolution, and industrialization, Russian Czars, post-Soviet leaders from Ivan the Terrible and Peter the Great to Lenin, Stalin, and Gorbachev. Taught in English. Instructor: Staff. One course. C-L: International Comparative Studies

109. Language Technologies and Culture Acquisition. R, SS, STS Acquisition and application of sophisticated information technologies for developing models of language systems and culture. (Computer technologies include PDF, Unicode, Linux operating systems digitizing, XML, HTML, metatagging.) Examination of the controversies concerning the use of technologies in the study and acquisition of languages and culture. Focus on the impact of such technologies on the educational systems of the United States and Europe. Team taught (Linguistics and Computer Sciences specialist.). One course. C-L: Linguistics 107, Information Science and Information Studies

111S. Senior Honors Seminar. R, W Introduction to methods of research and writing, including selection of thesis topics, preliminary research and organization, and writing of the thesis. In-depth analysis of Russian or other Slavic language texts required. Consent of the instructor or director of undergraduate studies required. Instructor: Staff. One course.

112S. Senior Honors Seminar. R, W Continuation of Russian 111S. Consent of the director of undergraduate studies required. Instructor: Staff. One course.

113. Movies of the World/The World of Movies. ALP, CCI, STS One course. C-L: see Literature 113; also C-L: English 122, German 156, Film/Video/Digital 112
115. Russian Language Studies in St. Petersburg. CCI, FL Russian grammar, composition and textual analysis taught only in St. Petersburg for students participating in the semester program. Explicit analysis of historical and contemporary cultural representations and texts in language, literature and the verbal arts. Instructor: Staff. One course.

116. Russian Fiction and Film. ALP, CCI Russia's turbulent history recounted through its literature and film. Short works by Russia's most famous authors (Dostoevsky, Tolstoy, Chekhov) as well as the writings of lesser-known, but equally important writers (Teffi, Vladimov); comparison of these written works with films made of the stories. Exploration of the main trends of Russian culture through its literature and film; focus on the differences between film and written narratives. Instructor: Gheith. One course.

117. Languages of the World. CCI, SS One course. C-L: see Linguistics 102; also C-L: Cultural Anthropology 114, English 114, International Comparative Studies 102E

118S. Islam and Orthodoxy. CCI, CZ The history, doctrines, insitutions, controversies, and influences of Russian Orthodox Church and Islam in Eurasian Russia. Relationship between Orthodoxy and conceptions of Russia's identity and place in the world, and the character and socio-political function of Islam in the Turkish regions of Central Asia, the Caucasus, and the Balkans. Historical surveys beginning with Byzantine and Muslim missions to Volga region in ninth century CE and ending with the reemergence of Orthodoxy and Islam in the post-Soviet era. Open only to students in the Focus Program. Prerequisite: Advanced Placement credit in European history. Instructor: Staff. One course.

119S. The Empire's Western Front: Russian and Polish Cultures. ALP, CCI, CZ Exploration through literature and film of the relationship between Russian and Polish cultures in the nineteenth and twentieth centuries when imperial Russia/Soviet Union figured as Poland's problematic "east," and subject state of Poland figured as Russia's problematic "west." Nineteenth century anti-tsarist uprisings, 1920 Soviet-Polish campaign, Poland’s postwar sovietization, rise of Solidarity, construction of their respective national identity vis-a-vis an "other" imagined as foe or friend in fiction, drama, film, memoirs. Includes works by Pushkin and Dostoevsky; films by Andrzej Wajda. Open only to students in the Focus Program. Prerequisite: Advanced Placement credit in English. Instructor: Holmgren. One course.

120S. Topics in Slavic and Northern European Languages. FL, SS Instructor: Staff. One course.

121S. Introduction to Russian Literature. ALP, CCI, FL Reading and close textual analysis of the major works in nineteenth- and twentieth-century Russian literature including prose and poetry. Readings in Russian. Prerequisite: Russian 63, 64 or equivalent. Instructor: Staff. One course.

123. Studies in Contemporary Russian Culture and Cognition. CCI, CZ, SS In-depth exposure to theories of culture and cognition with special attention to the study of Russian culture and Russian contributions to cognitive science and linguistics. Instructor: Andrews. One course.

124S. Russian Language and Culture through Film. CCI, FL, SS Study of Russian cultural paradigms and constructs of self and other as demonstrated in Russia and Soviet films, primarily from 1960s to the present. Special attention given to the analysis of linguistic constructs and their cultural semantic content as well as comparative analyses of Soviet and Russian culture and Russian and European/American culture. Prerequisite: Russian 101S or equivalent or consent of instructor. Instructor: Maksimova. One course. C-L: Visual Studies 127AS

126S. Russian Language and Culture through Film II. ALP, CCI, FL, SS Continuation of Russian 124S. Analysis of Russian cultural paradigms and linguistic issues through contemporary Russian and Soviet film. Prerequisite: Russian 101S or equivalent or consent of instructor. Instructors: Maksimova. One course. C-L: Visual Studies 127CS

127. Russian Language and Culture through Theatre. ALP, CCI, FL, SS Study of Russian cultural paradigms and constructs of self and other as demonstrated in Russian and Soviet theatre (texts and performance), primarily from the 1920s to the present. Special attention given to the analysis of cultural, linguistic, and semantic constructs as well as comparative analyses of Soviet and Russian culture and Russian and European/American culture. Prerequisite: Russian 101S or equivalent or consent of instructor. Instructors: Maksimova, McAuliffe, and Viktorov. One course.

128. Russian Language and Culture through Music. ALP, CCI, FL, SS Study of Russian cultural paradigms and constructs of self and other as demonstrated in Russian and Soviet folk, popular, and classical music (texts and performance), primarily twentieth century to the present. Special attention given to the analysis of cultural, linguistic, and semantic constructs as well as comparative analyses of Soviet and Russian culture and Russian and European/American culture. Prerequisite: Russian 101S or equivalent or consent of instructor. Instructors: Andrews and Mickiewicz. One course.

131. Language, Culture, and Myth: The Slavic Proverb. ALP, CCI The sources of the Slavic proverb, the proverb as microtext of national stereotypes, and its function in modern literature and culture. West, South and East Slavic proverbs contrasted with other Indo-European language families. Theoretical aspects include explications of the relationship of language and culture and problems of translation. Taught in English or Russian. Readings in Russian with excerpts from other Slavic languages. Instructor: Staff. One course.

133S. Neuroscience and Human Language. NS, SS One course. C-L: see Linguistics 133S

135A. Contemporary Russian Media. CCI, EI, FL, SS Same as Russian 135 but taught only in St. Petersburg. Taught in Russian. Prerequisite: Russian 64 or equivalent. Instructor: Staff. One course. C-L: Visual Studies 127E, International Comparative Studies, Film/Video/Digital

137. Multinationalism and Multiculturalism in the Slavic World. CCI, CZ The twentieth century aspiration that peoples of different nationalities, different religions, and different cultural and linguistic backgrounds can live in harmony within the same borders. Great Power policies at beginning of century in Habsburg Empire, in Imperial Russia. Post-World War I experiments such as Yugoslavia, Czechoslovakia failed Polish East European federalism and Soviet Union's "solution" to multi-nationalism. The fragmentation of the end of the century and resultant problems of ethnic rights on political and economic stability. Instructor: Staff. One course. C-L: History 140B

138S. Russia, Turkey, and the Cultures of Eurasia. ALP, CCI Examination of connections between Russian and Ottoman/Turkish culture and identity as reflected in literature and film. Focus on comparative aspects of imperial rule, cultural revolution, gender, national identity and aesthetic understanding. Open only to students in the Focus Program. Instructor: Gheith and Goknar. One course. C-L: Turkish 138S

139S. Law and Globalization in Emerging Markets. CCI, SS The processes of law and economic reform in Eurasia and how they are shaped by external influences and domestic factors: effect of membership in the World Trade Organization, the European Union, the Council of Europe, NATO, and other such organizations; strategies followed to establish the rule of law and constitutionalism, protection of property ownership, human rights. Open only to students in the Focus Program. Prerequisite: Advanced Placement credit in European
140. **Law and Constitutional Reform in Russia and the Former Soviet Union. CCI, CZ**

Russia's efforts to create a constitutional government from a variety of perspectives, with particular emphasis on the political, historical, and legal aspects. Legal and constitutional changes in Russia compare or contrast with reforms in other transitional states. Instructor: Newcity. One course. C-L: International Comparative Studies 161E

143. **Contemporary Russian Culture: Detective Novels and Film. ALP, CCI, CZ, FL**


144. **Tolstoy and the Russian Experience. ALP, CCI, CZ, EI**

Historical approach to Tolstoy's depictions of major societal and ethical issues (e.g., war, peace, marriage, death, religion, relationships). Culture of salons, print culture, censorship, and changing political climate. Central questions on the relationship of fiction and history: uses of fiction for understanding history and dangers of such an approach. Readings include selected fiction of Tolstoy, excerpts from journals and letters, and critical and historical accounts of nineteenth-century Russia. Instructor: Gheith. One course. C-L: History 144B

145. **Theory and Practice of Translation. CCI, FL**

Detailed study of the American, European and Slavic scholarly literature on translation combined with close analysis of existing literary and journalistic translations and a program of practical translation projects from English to Russian and Russian to English. Instructor: Flath. One course.

146S. **Tennessee Williams and Anton Chekhov. ALP, CCI**

One course. C-L: see Theater Studies 177S

147. **Imagining the Slumbering Lands: Siberia and Central Asia Through Native and Russian Eyes. ALP, CCI, CZ**


149S. **Russian Culture in the Era of Terror: A Reexamination. ALP, CCI, CZ, R**

Readings from various sources, such as recently published diaries and literary works; film and other critical and historical material. The 'era of the great terror' (1934-39) seen through cultural production, its reception through everyday life narratives and contemporary ideology critique. Taught in English. Instructor: Gheith. One course. C-L: International Comparative Studies

150. **Russian Revolutionary Cinema. CCI, CZ**

One course. C-L: see History 150E; also C-L: Film and Video

155. **Special Topics in Russian and American Culture. CCI**

Addresses the broad, interdisciplinary issue of identity and otherness while studying specifically what happens when the cultures of Russia and the United States come into contact. Taught in English. Instructor: Van Tuyl. One course. C-L: International Comparative Studies

155S. **Special Topics in Russian and American Culture.** Seminar version of Russian 155. Instructor: Staff. One course.

156. **Twentieth-Century Russian Women. ALP, CCI, CZ**

Issues of gender and society in Russia in the twentieth century. Readings include autobiographical writings, works of fiction, and selected historical sources. Taught in English. Instructor: Holmgren. One course.
157. Law, Culture, and the Russian Legal Tradition. CCI, CZ, EI, SS. The development of the Russian legal tradition, with particular emphasis on the historical, ethical and cultural factors that have contributed to its emergence, comparing the Russian tradition with the Western legal tradition. How law, lawyers, and legal institutions have been portrayed and perceived in Russian popular culture, especially Russian literature, including the relationship between secular legal institutions and the Russian Orthodox Church. Taught in English. Instructor: Newcity. One course. C-L: Public Policy Studies 131, International Comparative Studies

158. The Russian Novel. ALP, CCI, R. Close reading of Tolstoy's Anna Karenina, Dostoevsky's Possessed, Andrey Bely's Petersburg, Bulgakov's Master and Margarita, Nabokov's The Gift, and Makine's Memoirs of my Russian Summers. Discussions will focus on these representative writers' changing perceptions of, and responses to social and ethical issues and of creativity, itself, as the genre evolved in the modern times between the 1870s and now. Final research paper required and can include in-depth discussion of one of the works or the comparison of one or more aspects of several texts. Taught in English. Instructor: Mickiewicz. One course.


162. Masterpieces of Nineteenth-Century Russian Literature II. ALP, CCI, W. Selected authors, works, and genres from the second half of the nineteenth century. Authors include Turgenev, Chernyshevsky, Dostoevsky, Tolstoy, Saltykov-Shchedrin, and Chekhov. Comparative analysis of Russian, European and American literature of the period. Taught in English. Instructor: Flath. One course. C-L: International Comparative Studies


166. Tolstoy and Dostoevsky. ALP, CCI. Selected representative short works and most of the major novels of Leo Tolstoy and Fyodor Dostoevsky. The great issues and their vivid dramatization will be considered in the light of the author's irreconcilable approaches to the human condition, culture, artistic goals, and narrative technique. Not open to students who have taken this course as 49S or have taken Russian 175 or 176. Instructor: Staff. One course.

167. The Devil in Russian Literature. ALP, CCI. The symbolic and metaphorical system that surrounds the image of the Fiend; the figure of the Devil in his various manifestations through Russian folklore, culture, and literature. Taught in English. Instructor: Staff. One course.

169. Women and Russian Literature. ALP, CCI. Issues of gender and society in women's writing in Russian from the eighteenth to the twentieth centuries. Both autobiographical writings and prose fiction. Discussions of whether Russian women's writings constitute a tradition and what role these works have played in Russian literature and culture. Taught in English. Instructor: Gheith. One course. C-L: Women's Studies, International Comparative Studies

171S. Bunin: Mystery of the Russian Soul and Metaphysical Memory. ALP, CCI, FL. Prose works of Ivan Bunin; emphasis on elements of tragedy, metaphysical representations, phenomenological novel and modernism, synthesis of verbal and visual art forms. Works include "The Life of Arsenyer, Village, Sun Stroke, Light Breathing, Grammar of Love, Transformations, Pure Monday, and autobiographical and critical writings. Taught in


175. Tolstoy. ALP, EI, W Introduction to life, works, and criticism. Readings include: War and Peace, Anna Karenina, shorter fiction, dramatic works and essays. Analysis of Tolstoy's views on the importance of ethics and the structure of society. Taught in English. Instructor: Van Tuyl. One course. C-L: International Comparative Studies


182. Russian Art and Politics: 1800-Present. ALP, CCI, CZ Historical and contemporary engagement of visual culture-painting, sculpture, architecture, graphic arts, film, photography-with the political sphere in Russia from the early nineteenth century to the present. Interactions between artists, art critics, censors, government authorities, and the public indicating how visual culture both responded to demands from the political sphere and shaped the political discourse of the day. Instructor: Kachurin. One course.

183S. The Actress: Celebrity and the Woman. ALP, CCI, CZ Explores through fiction, film, autobiographies, and biographies the significance and influence of the actress (on stage and screen) from eighteenth century to present day. Highlighted topics: actress's self-image and perception of her art; relationship between her public profession and private life; how she reflects/sets contemporary standards for beauty and lifestyle; how she provokes public debate over women's "appropriate" sexual, familial, professional, and public roles; her function as symbol/role model for her gender, race, nation. Includes Sarah Bernhardt's memoirs, Chekhov's The Seagull, Susan Sontag's In America, films All About Eve and Mommie Dearest. Taught in English. Instructor: Holmgren. One course. C-L: Women's Studies 183S, Theater Studies 122AS

193. Research Independent Study. R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.


195. Advanced Russian. CCI, FL Intensive exposure to Russian word formation with an emphasis on the students' refinement of oral and written language skills. Development of discourse strategies and writing style through textual analysis, compositions and essays. Taught in Russian. Prerequisite: Russian 102S or consent of instructor. Instructor: Maksimova. One course. C-L: International Comparative Studies

196. Advanced Russian: Readings, Translation, and Syntax. CCI, FL Intensive reading and conversation with emphasis on the analysis of twentieth century Russian literary and culture texts. Russian media, including television and films. Prerequisite: Russian 195 or consent of instructor. Instructor: Maksimova. One course. C-L: International Comparative Studies 161A
198. Russian Stylistics and Conversation. ALP, CCI, FL, W Refinement of stylistic control and range in spoken and written Russian through intensive textual analysis, including literary (prose and poetry) texts, popular and scholarly journals, and film. Emphasis on fluent discursive skills, as well as development of expository prose style and rhetorical strategies. Taught in Russian. Prerequisite: Russian 195 and 196, or consent of instructor. Instructor: Maksimova. One course.

199. Russian Stylistics and Conversation. ALP, CCI, FL, W Continuation of Russian 198. Prerequisite: Russian 195 and 196, or consent of instructor. Instructor: Maksimova. One course. C-L: International Comparative Studies 160A

For Seniors and Graduates

202. Semiotics of Culture. ALP, CCI, CZ, R The theory of literature, arts, ethnicity, modernity, and culture from a cross-cultural perspective. Texts include the critical works of Lotman and the Tartu School, Bakhtin, Eco, Kristeva, Voloshinov, Medvedev, Barthes, Todorov, Jakobson, Ivanov, and Sebeok, as well as authentic culture texts from Slavic and European traditions. Research project required. Instructor: Andrews. One course. C-L: Cultural Anthropology 202, English 206

203S. Research Methods In International Area Studies. CCI One course. C-L: see Latin American Studies 202S; also C-L: Asian and African Languages and Literature 207S, Cultural Anthropology 291S, Romance Studies 202S, German 264S


206. Russian Modernism. ALP, CCI Russian culture between the 1890s and the 1920s, including visual, musical, literary arts, and developments ranging from Neo-Christian mysticism, cosmism, synthesis of the arts, and revolutionary activism. Focus on literary-philosophical thought of that period. Taught in English. Instructor: Mickiewicz. One course.

208. Stylistic and Compositional Elements of Scholarly Russian. CCI, FL Intensive study of Russian scholarly and scientific texts from a variety of disciplines, including biology, business, anthropology, economics, law, history, mathematics, physics, political sciences, sociology, psychology, linguistics, and literary criticism. Mastery of stylistic and discourse strategies. Analysis of cultural patterning in textual construction in the humanities, social and natural sciences. Taught in Russian. Prerequisite: Russian 64 or consent of instructor. Instructor: Maksimova. One course.

211. Legal and Business Russian. CCI, CZ, EI, FL Analysis of Russian language and culture in the area of legal studies and conducting business in or with Russia and other Commonwealth of Independent States countries. Primary materials include legal codes, law journals, contracts, advertising, financial documents, redactions of the Soviet and Russian constitutions (1905-present). Specific attention given to the analysis of evolution of property and ownership legislation, the workings of the legislative, executive and judicial branches of the Russian Federation government and contrastive analysis of Soviet, Russian (and where relevant Western) systems of jurisprudence. Taught in Russian. Prerequisite: Russian 102S or equivalent. Instructor: Andrews or Maksimova. One course.

215. Theory and Methods of Comparative Linguistics. CCI, R, SS Diachronic and synchronic approaches to the study of comparative linguistics in phonology, morphology, morphophonemics, syntax, and lexical categories in the context of the world's languages. Both Indo-European and non-Indo-European languages. Topics include theories of reconstruction, languages in contact, abductive processes, questions of linguistic typology
and cultural-based approaches to the analytical study of human languages. Research project required. Instructor: Andrews. One course.

216. Cognitive and Neurolinguistics. NS, R, SS One course. C-L: see Linguistics 201

243. Contemporary Russian Culture: Detective Novels and Film. ALP, CCI, CZ, FL

244. Tolstoy and the Russian Experience. ALP, CCI, CZ, EI
Historical approach to Tolstoy's depictions of major societal and ethical issues (e.g., war, peace, marriage, death, religion, relationships). Culture of salons, print culture, censorship, and changing political climate. Central questions on the relationship of fiction and history: uses of fiction for understanding history and dangers of such an approach. Readings include selected fiction of Tolstoy, excerpts from journals and letters, and critical and historical accounts of nineteenth-century Russia. Similar to Russian 144 but requires additional assignments. Instructor: Gheith. One course.

245. Theory and Practice of Translation. CCI, FL
Detailed study of the American, European, and Slavic scholarly literature on translation combined with close analysis of existing literary and journalistic translations and a program of practical translation exercises and projects from English to Russian and Russian to English. Prerequisite: three years of Russian language study or consent of instructor. Instructor: Flath. One course.

246. Media in Post-Communist Societies. CCI, R, SS, STS One course. C-L: see Public Policy Studies 243; also C-L: Political Science 276, International Comparative Studies, Information Science and Information Studies, Policy Journalism and Media Studies

258. The Russian Novel. ALP, CCI, R
Close reading of Tolstoy's Anna Karenina, Dostoevsky's Possessed, Andrey Bely's Petersburg, Bulgakov's Master and Margarita, Nabokov's The Gift, and Makine's Memoirs of My Russian Summers. Discussions will focus on these representative writers' changing perceptions of, and responses to social and ethical issues and of creativity, itself, as the genre evolved in the modern times between the 1870s and now. Final research paper required and can include in-depth discussion of one of the works or the comparison of one or more aspects of several texts. Taught in English. Readings in Russian. Instructor: Mickiewicz. One course.

262. Masterpieces of Nineteenth-Century Russian Literature II. ALP, CCI
Selected authors, works, and genres from the second half of the nineteenth century. Authors include Turgenev, Chernyshevsky, Dostoevsky, Tolstoy, Saltykov-Schedrin, and Chekhov. Taught in English. Readings in Russian. Instructor: Staff. One course. C-L: International Comparative Studies

269. Women and Russian Literature. ALP, CCI, FL
Issues of gender and society in women's writing in Russian from the eighteenth to the twentieth centuries. Both autobiographical writings and prose fiction. Discussions of whether Russian women's writings constitute a tradition and what role these works have played in Russian literature and culture. Taught in English. Readings in Russian. Instructor: Gheith. One course. C-L: Women's Studies, International Comparative Studies

271S. Bunin: Mystery of the Russian Soul and Metaphysical Memory. ALP, CCI, FL, R

275. Tolstoy. ALP, EI
Introduction to life, works, and criticism, including Tolstoy's philosophical and ethical discourse. Readings include: War and Peace, Anna Karenina, the shorter fiction, dramatic works and essays. Taught in English. Readings in Russian. Instructor: Van Tuyl. One course.

277S. Chekhov. ALP, CCI Drama and prose works. Readings in Russian. Instructor: Flath. One course.


299S. Special Topics. CCI Seminars in advanced topics, designed for seniors and graduate students. Instructor: Staff. One course.

BALTO-FINNIC (BALTFIN)

100. Duke-Administered Study Abroad: Advanced Special Topics in Balto-Finnic. CCI Topics differ by section. Instructor: Staff. One course.

HUNGARIAN (HUNGARN)


63. Intermediate Hungarian Language and Culture. FL Focus on the study of Hungarian phonetics, grammar, discourse, textual analysis, and writing. Prerequisites: Hungarian 1 and 2 or Hungarian 14 or consent of instructor. Instructor: Staff. One course.

70. Intensive Intermediate Hungarian. FL Intensive study of Hungarian at the intermediate level. Equivalent of two semesters. Prerequisites: Hungarian 1 and 2 or equivalent. Instructor: Viktorov. Two courses.

100. Duke-Administered Study Abroad: Advanced Special Topics in Hungarian. CCI Topics differ by section. Instructor: Staff. One course.

PASHTO (PASHTO)

1. Elementary Pashto I. FL Acquisition of the Arabic-based script, the mechanics of right-to-left reading and writing, the sounds of the language, and the basic sentence types. Emphasis on reading comprehension and writing, accurate pronunciation and spoken ability. Simple dialogues and conversations used to lay the foundation for oral proficiency. Includes poems and short videos, online multimedia resources, and interaction with class guests. Instructor: Staff. One course.

2. Elementary Pashto II. FL Continuation of Pashto I. Prerequisite: Pashto I. Instructor: Staff. One course.

63. Intermediate Pashto I. FL Intensive classroom and laboratory practice in spoken and written patterns. Prerequisite: Pashto 1 and 2. Instructor: Staff. One course.

64. Intermediate Pashto II. FL Continuation of Pashto 63. Prerequisite: Pashto 1, 2, 63, or equivalent. Instructor: Staff. One course.

PERSIAN (PERSIAN)


2. Elementary Persian. FL Continuation of Persian 1. Instructor: Staff. One course.

64. Intermediate Persian. FL Continuation of Persian 63. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Persian. CCI Topics differ by section. Instructor: Staff. One course.

POLISH (POLISH)

1. Elementary Polish. FL Introduction to understanding, speaking, reading, and writing Polish. No preliminary knowledge of Polish necessary. Instructor: Staff. One course.

2. Elementary Polish. FL Introduction to understanding, speaking, reading, and writing Polish. No preliminary knowledge of Polish necessary. Second half of Polish 1, 2. Prerequisite: Polish 1. Instructor: Staff. One course.

63. Intermediate Polish. FL Intensive classroom and laboratory practice in spoken and written patterns. Readings in contemporary literature. Prerequisites: Polish 1 and 2, or consent of instructor. Instructor: Staff. One course.

64. Intermediate Polish. FL Continuation of Polish 63. Prerequisite: Polish 63 or consent of instructor. Instructor: Staff. One course.


101S. Contemporary Polish Composition and Readings. CCI, FL Advanced grammar and syntax with intense composition component. Analytical readings in the original. Prerequisite: Polish 63 and 4, or equivalent. Instructor: Staff. One course.

102S. Contemporary Polish Composition and Readings. CCI, FL Continuation of Polish 101S. Prerequisite: Polish 101S. Instructor: Staff. One course.

174S. Topics in Polish Literature. ALP, CCI Selected Polish writers and works in their literary and historical contexts. Taught in English. Instructor: Holmgren. One course. C-L: International Comparative Studies 160S

175. Polish Culture from 1795 to the present. ALP, CCI, CZ, FL Polish culture and history explored largely through works of literature, especially poetry, historical readings, and several post-1945 films with based on seminal works of Polish literature or dealing with important historical events. Readings and films in Polish. Focus on Polish struggles for independence and full autonomy (the latter in the communist period 1945-1989), the growth of the modern Polish nation, the role of the Catholic Church, ethnic issues (in particular the Jews in Polish culture), gender issues, the changing self-image of Poles, dissident and Solidarity movement, and current events in post-communist Poland as a member of the European Union. Instructor: Hueckel. One course.

ROMANIAN (ROMANIAN)


63. Intermediate Romanian Language and Culture. FL Focus on the study of Romanian phonetics, grammar, discourse, textual analysis, and writing. Prerequisite: Romanian 14 or consent of instructor. Instructor: Staff. One course.

70. Intensive Intermediate Romanian. FL Intensive study of Romanian at the intermediate level. Equivalent of two semesters. Prerequisite: Romanian 14 Instructor: Staff. Two courses.

SERBIAN AND CROATIAN (SERBCRO)

100. Duke-Administered Study Abroad: Advanced Special Topics in Serbian and Croatian. CCI Topics differ by section. Instructor: Staff. One course.
TURKISH (TURKISH)

1. Elementary Turkish. FL Introduction to understanding, speaking, reading, and writing Turkish. Instructor: Staff. One course.

2. Elementary Turkish. FL Introduction to understanding, speaking, reading, and writing Turkish. Second half of Turkish 1, 2. Prerequisite: Turkish 1. Instructor: Staff. One course.

10. Accelerated Turkish Language and Culture I. FL Accelerated study of contemporary Turkish language and culture. Intended for students with no previous knowledge of Turkish: speaking, reading, writing, grammar and listening comprehension, and appropriate use of cultural constructs. Instructor: Goknar. One course.

11. Accelerated Turkish Language and Culture II. CZ, FL Continuation of Turkish 10. Intermediate level of proficiency in five areas, grammar, speaking, listening comprehension, reading and writing. Language taught embedded in cultural constructs. Prerequisite: Turkish 10 or equivalent. Instructor: Goknar. One course.

63. Intermediate Turkish. FL Classroom and laboratory practice in spoken and written patterns. Readings in contemporary literature. Prerequisites: Turkish 1 and 2, 14, or consent of instructor. Instructor: Staff. One course.

100. Duke-Administered Study Abroad: Advanced Special Topics in Turkish. CCI Topics differ by section. Consent of department required. Instructor: Staff. One course.

101S. Contemporary Turkish Composition and Readings. CCI, FL Advanced grammar and syntax with intense composition component. Analytical readings in the original. Prerequisite: Turkish 70 or equivalent. Instructor: Staff. One course.

102S. Contemporary Turkish Composition and Readings. CCI, FL Continuation of Turkish 101S. Prerequisite: Turkish 101S. Instructor: Staff. One course.

105S. The Middle East through Historical Literature. ALP, CCI, CZ The Middle East as seen through historical fiction, travelogues, and memoir (and some film). Relationships between history and literature and identity. Secondary readings in imperialism, nationalism, violence, gender, and colonialism. Open only to students in the Focus Program. Prerequisite: Advanced Placement credit in European history. Instructor: Goknar. One course. C-L: Literature 163HS, Islamic Studies

132. Representing the Middle East. CCI, CZ, SS One course. C-L: see Cultural Anthropology 132; also C-L: Asian and African Languages and Literature 132, History 131B, International Comparative Studies 141B, Visual Studies 110H, Islamic Studies


135. The Turks: From Ottoman Empire to European Union. ALP, CCI, CZ, R Readings in history, cultural studies, and literature to examine transformation in Ottoman identity during rise and decline of empire. Topics include Islam, art and architecture, historiography, and ethnicity. Social and political forces that led to Ottoman successes and failure, including religious tolerance, military power, and Capitulations. Interdisciplinary focus. Taught in English. Instructor: Goknar. One course. C-L: Cultural Anthropology 152, Religion 161F, History 141A, Islamic Studies

136. Thinking About God: The Nature of Religious Belief at the Crossrds of Judaism, Christianity, & Islam. CCI, CZ, EI One course. C-L: see Philosophy 135; also C-L: Cultural Anthropology 120B, Religion 161V, International Comparative Studies 102F
138S. Russia, Turkey, and the Cultures of Eurasia. ALP, CCI Examination of connections between Russian and Ottoman/Turkish culture and identity as reflected in literature and film. Focus on comparative aspects of imperial rule, cultural revolution, gender, national identity and aesthetic understanding. Open only to students in the Focus Program. Instructor: Gheith and Goknar. One course. C-L: Russian 138S

235. The Turks: From Ottoman Empire to European Union. CCI, R Reading and assessment of new scholarship on Ottoman culture, society, politics, and state. Supplemented by critical texts on historiography, identity, gender, religion, and orientalism. Topics include "gazi thesis," secular and Islamic law, "Kadi justice," everyday life, and role of women. Final research project with interdisciplinary focus. Instructor: Goknar. One course. C-L: Islamic Studies

299S. Special Topics. Seminars in advanced topics, designed for seniors and graduate students. Instructor: Staff. One course.

UKRAINIAN (UKRAIN)


100. Duke-Administered Study Abroad: Advanced Special Topics in Ukrainian. CCI Topics differ by section. Instructor: Staff. One course.

THE RUSSIAN MAJOR

Major Requirements. The Russian major requires a minimum of ten Russian courses in the department, eight of which must be at the 100-level or above. All majors must take the following courses: Russian 63, 64, 101S, 102S, 195, 196 or equivalent. Each major is additionally required to take four courses, of which at least two have a primary focus on Russian literature. The department urges students to consider coursework that would include at least one 200-level course.

THE SLAVIC AND EURASIAN STUDIES MAJOR

The Slavic and Eurasian Studies major is designed to enable students to gain knowledge about Slavic and Eurasian languages and cultures as well as their histories and contemporary interactions.

Major Requirements. To earn a major in Slavic and Eurasian Studies, students must complete ten (10) courses, 8 of which must be at the 100-level or above. Required courses are “Mapping Slavic and Eurasian Studies” (Slavic and Eurasian Studies 101); a capstone seminar (Slavic and Eurasian Studies 197S) in their junior or senior year, which includes a significant research component; four (4) language courses above the 002 level of either Russian (e.g., Russian 63, 64, 101S, 102S) or Turkish (Turkish 10, 11, 101S, 102S); and four content (elective) courses on Slavic and Eurasian Studies topic with no more than two of these on an exclusively Slavic topic. The department of Slavic and Eurasian Studies also offers Romanian, Polish, and Persian on a regular basis and Georgian on a semi-regular basis. These languages can be counted as fulfilling the language requirement with prior approval from the Director of Undergraduate Studies.

Appropriate content courses may come from a list of approved courses (to be found on the department website at http://www.duke.edu/web/slavic/) or may include other courses (new courses, special topics courses, independent study) with at least 50 percent course content in Slavic and Eurasian studies. To determine if specific courses meet requirements for the major, students should consult the Director of Undergraduate Studies in the Slavic and Eurasian Studies Department.

Students are encouraged to study abroad in a country that is related to the geographical area covered by the major.
The Slavic and Eurasian Studies Department regularly offers a Focus cluster, “Between Europe and Asia: Explorations in Culture, Law, and Cognitive Science,” in the fall semester and the two Focus seminars will count toward the Eurasian Studies major.

**Departmental Graduation with Distinction**

The department offers work leading to Graduation with Distinction. See the section on honors in this bulletin and the departmental director of undergraduate studies.

**THE MINOR**

Minors are offered in Russian Culture and Language, Russian Literature in Translation, and Turkish Language and Culture.

**Russian Culture and Language**

*Requirements:* Five courses, three of which must be at the 100-level or above. At least two courses must be in the Russian language.

**Russian Literature in Translation**

*Requirements:* Five courses, three of which must be at the 100-level.

**Turkish Language and Culture**

*Requirements:* Five courses, three of which must be at the 100-level or above. Two courses must be in the Turkish language.

**Sociology (SOCIOL)**

Professor O’Rand, *Chair*; Professor Burton, *Director of Undergraduate Studies*; Visiting Associate Professor Bach, *Associate Director of Undergraduate Studies*; Professors Bonilla-Silva, Burton, Chaves, George, Gereffi, Gao, Keister, Land, Lin, McPherson, O’Rand, Smith-Lovin and Spenner; Associate Professors Moody and Brady; Professors Emeriti Maddox, Preiss, Simpson, Smith, Tiryakian, and Wilson; Professors of the Practice Brown (public policy) and Merkx; Adjunct Professors Carroll (divinity), P. Cook (public policy), Lewin (business), O’Barr (cultural anthropology), and Payne (history); Adjunct Associate Professor Gold (psychiatry and aging center); Adjunct Research Professors Manton and Stallard; Associate Research Professor Blankenship (Duke Global Health Initiative); Visiting Associate Professor Tobin; Visiting Assistant Professors Hovsepian, Lawson-Clark, and Reeves.

A major or minor is available in this department.

Sociology combines an appreciation of human beings' capacity for self-realization with a scientific understanding of the causes and consequences of their social behavior. Each course aims to develop both the analytical and critical skills necessary for understanding and evaluating social institutions and social change. Emphasis is upon contemporary research and the use of sociological data in tackling social problems. Active involvement in the learning process is fostered through seminars, independent study, honors work, and internships.

**10. Sociological Inquiry. SS** Structure and dynamics of groups, organizations, and institutions; social behavior over the life cycle; social control and deviance; population and social ecology; formation and change of societies. Instructor: Staff. One course.

**11. Contemporary Social Problems. CCI, SS** Comparative analysis of social problems across historical periods, nations, and social groups by gender, race/ethnicity, social class, and culture. Major topics: deviant behavior, social conflict and inequality, and human progress and social change. Emphasis on research issues, especially how and to what degree the understanding of social problems is a direct result of the inductive processes used to define social problems and the research methods and procedures used to investigate them. Instructors: Bach and Land. One course. C-L: Children in Contemporary Society

**49S. First-Year Seminar.** Topics vary each semester offered. Instructor: Staff. One course.

90S. Society, the Self, and the Natural World. CCI, EI, SS Exploration of changing and/or contrasting perceptions, studying how our perceptions are conditioned by the times we live in and reigning assumptions of our societies. Three course components taught by faculty in each discipline including: exploration of perceptions of the self through the arts, the changing role of women in society; and examination of science and society conflicts. Open only to Baldwin Scholars. Consent of instructor required. Instructor: Lisker. One course.

98. Introduction to Canada. SS One course. C-L: see Canadian Studies 98; also C-L:

99AFCS. Contemporary American Society. CCI, R, SS Relationships among voluntary association, ideology, and identity. Theoretical focus on ecological models borrowed from biology to increase understanding of how voluntary associations grow, decline, and change their composition (and therefore their ability to integrate society) and how associations lead to personal identity, belief systems and even cultural tastes. Analysis of data from a national survey of voluntary memberships and network ties, from the first representative survey of church congregations, and from a study of identities, actions and emotion. Open only to students in the Focus Program. Instructor: McPherson, Morgan, or Smith-Lovin. One course.

99BFCS. Biology and Society. R, SS, STS How societies emerge and develop. Diverse evolutionary theories, such as sociobiology, the evolution of cooperation, the demographic imperative, technological determinism and genetic determinism, that have been used to explain the origins and changes of social structures like the family, the state, and the world system. Student research into traditional and contemporary global societies. Open only to students enrolled in the Focus Program. Instructor: O’Rand. One course.

99CFCS. A Single Europe? Dreams and Reality. CCI, EI, R, SS The cultural effects of European integration and how European Union policies affect collective identities in Europe. Topics include: emergence of European identity, regionalism, nationalism/post-nationalism, immigration and inter-group violence. Open only to students in the Focus Program. Instructor: Staff. One course.

99DFCS. U.S. Latinos in Sociological Perspective: Immigration and Adaptation. CCI, SS The sociological aspects of Latin American immigration to the United States. The historical origins of the migration flow as well as its current characteristics. Problems that immigrants face as they struggle to incorporate into United States society, the impact that migration has on the native-born population of the United States particularly other minority groups, and the impact on the sending countries and communities. The changes that migration engenders in individuals and families, such as its effect on social mobility and gender relations, the heterogeneity of the Latino population. Open only to students in the Focus Program. Instructor: Staff. One course.

99EFCS. Race Relations in the Modern South. CCI, SS The effects of law on racial dynamics, the changing meaning of race in popular and policy discourse, and the impact of recent immigration, particularly Latino immigration, on historical patterns of Southern race relations. Issues addressed through critical reading of a set of historical monographs and the analysis of primary data on racial inequality, racial segregation and racial collective violence. Open only to students in the Focus Program. Consent of instructor required. Instructor: Staff. One course.

99FFCS. Psychosocial Development of the Mind Through the Life Course. CCI, SS One course. C-L: see Psychology 94FCS

99GFCS. Freedom and American Constitutional Law. CCI, EI, SS Examination of how the idea of freedom is translated into the American legal system. Emphasis on understanding the American legal framework and legal reasoning. Reading will include major Supreme Court opinions. Focus on legal rights in education and race. Opportunities to work with Civil
Rights attorneys. Open only to students in the Focus Program. Instructor consent required. Instructor: Tobin. One course.

100. **Duke-Administered Study Abroad: Advanced Special Topics in Sociology.** CCI, SS Instructor: Staff. One course.

106. **Social Psychology.** SS One course. C-L: see Psychology 116; also C-L: Women's Studies

110. **A-E. Comparative Sociology: Selected Areas.** CCI, SS Comparative studies of selected areas of the world, considering differences and similarities in culture and communication, family, law and social control, urban forms and the organization of work. Areas vary each semester offered and are designated by letter. A. Africa B. Asia C. Europe D. Latin America E. Cross-Regional Instructor: Gao, Gereffi, Lin, or Parrado. One course. C-L: Markets and Management Studies, International Comparative Studies

111. **Wealth, Power, and Inequality.** CCI, SS The nature, forms, and socioeconomic bases of inequality. Age, gender, race, ethnicity, class, region, and family as dimensions of inequality. Variations in the structure of inequality over time and across nations. How educational institutions, economic development, work institutions, and state welfare programs affect the shape of inequality. Social inequality and social mobility. Instructor: Keister or O'Rand. One course. C-L: Women's Studies, Early Childhood Education

112. **Gender, Poverty, and Health.** SS Examines interconnections among gender, poverty, and health. Adopts global perspective with focus on US and resource poor countries. Discusses frameworks for understanding health as well as in depth case studies of particular health areas. Major focus on HIV/AIDS. Instructor: Blankenship. One course.

114. **Cybernetworks and the Global Village.** CCI, CZ, SS, STS Development and trends in internets as they affect the formation and organization of emerging social structures. Trends in both new, transnational social orders and segmenting of existing social orders. Multiple societies and the extent to which inequality in access to and participation in the cybernetworks reflects cultural, social, economic, and political implications. Emphasis on special research designs, methodologies (network analysis), and data sources necessary for research on cybernetworks. Prerequisite: internet experience. Instructor: Lin. One course. C-L: Markets and Management Studies, Information Science and Information Studies

115. **Environment as Community.** SS Examination of linkages in both directions between community (family, neighborhood) and responsible environmental behavior. Includes on-site collaboration with a local neighborhood having explicit environmental goals. Application of basic qualitative research methods, including participant observation, personal interview, and content analysis. Instructor: Clark. One course. C-L: Environment 115

116. **Comparative Race and Ethnic Studies.** CCI, EI, R, SS The social, legal and cultural construction of racial and ethnic hierarchies in a comparative international context with the United States and the United Kingdom of central analytical concern. Racial formation and racial segregation in specific historical and national contexts including the normative case of the Anglo-Saxon core in the United States and how its dominance has led to patterns of ethnic antagonism and discrimination; the historical context of racial stereotypes and their representation in various mediums. Social justice movements and public policies designed to challenge racial and ethnic domination including controversial topics such as "positive discrimination" (United Kingdom) and Affirmative Action (United States/South Africa). May include comparative case studies from India, South Africa, Brazil, and continental Europe. Instructor: Staff. One course. C-L: African and African American Studies 116, Children in Contemporary Society

117. **Childhood in Social Perspective.** SS, STS Social forces that have altered the role of children in society, with attention to changes in the population, labor force, community, family and kinship, schools, laws, government, and recreational and religious organizations. Focus on the United States, with some cross-cultural comparisons. Primary emphasis on
how changes in the world of childhood have emerged as offshoots of scientific and technological innovations related to population dynamics, scientific and professional upgrading of work skills, narrowing of social and geographical distances, and legal and government responses to these changes. Analysis of data using quantitative methods. Instructor: Staff. One course. C-L: Early Childhood Education, Children in Contemporary Society


119. **Juvenile Delinquency. CCI, EI, SS** The concept and measurement of delinquency and status offending; trends and patterns in the delinquency rate. Theoretical models used to explain the onset of delinquent behavior; environmental and individual correlates of delinquency such as gender, race, and social class; influence of families, delinquent subcultures, gangs, schools, and drugs; history of juvenile justice and the philosophy and practice of today's juvenile justice system; legal and ethical issues such as major court decisions on juveniles' rights, the use of detention, and transfer to adult court; models of sentencing, juvenile incarceration, and community treatment programs and their efficacy. Instructor: Land or staff. One course. C-L: Children in Contemporary Society

120. **Causes of Crime. EI, SS** The field of criminology and its most basic concepts: the definition of crime, the component areas of criminology, the history of criminology, criminological research methods, and the ethical issues that confront the field. The nature, extent, and patterns of crime, including victimization. Evaluation of criminological theories, including: biological, psychological, sociological, and cultural deviance theories; criminal behavior including violent crime, property crime, white-collar and organized crime, public order crimes, sex offenses, and substance abuse; the justice process, including police, courts, and corrections; the policy implications of criminological research. Instructor: Land or staff. One course.


122. **Punishment and Society. CCI, EI, SS** The history, philosophy, and procedures of punishment and treatment. The development of the penal system; the structure and operation of "total institutions" such as prisons and hospitals; the various sanctions. The issues and problems confronting both inmates and staff in contemporary prisons and concerns related to the imprisonment of women; the rights of prisoners and crime victims, the release of offenders and their return to society; current punishment and treatment of those defined as criminals within the context of what goal is intended; comparison of punishment and treatment procedures or programs in different parts of the world with the United States. Instructor: Staff. One course.

124. **Human Development. CCI, EI, R, SS** One course. C-L: see Human Development 124; also C-L: Psychology 124, Early Childhood Education

125. **Comparative Approaches to Global Issues (B, D). CCI, CZ, SS** One course. C-L: see International Comparative Studies 125; also C-L: Cultural Anthropology 125, History 137, Political Science 125, Religion 183, Global Health, Global Health

126. **The Challenges of Development. CCI, EI, SS** Diverse perspectives on economic development and theories concerning the role of transnational corporations and international financial institutions (for example, World Bank) in developing nations, assessed with the aid of sociological and economic data. Comparison of different countries and world regions in terms of their historical trajectories, development strategies and current challenges in economic and social development, broadly conceived in terms of material circumstances,
political economies, and quality of life. Instructor: Gereffi or staff. One course. C-L: Latin American Studies, Markets and Management Studies, International Comparative Studies

127. **The Latino Population in the United States.** CCI, SS Focuses on the economic and sociological aspects of Hispanic immigration and assimilation in the United States. Topics include: construction of Hispanic identity, the history of US Hispanic immigration, Hispanic family patterns and household structure, Hispanic educational attainment, Hispanic incorporation into the US labor force, earnings and economic well-being among Hispanic-origin groups, assimilation and the second generation. Instructor: Staff. One course. C-L: Children in Contemporary Society

128S. **Visual Research and the American Dream.** ALP, R, SS One course. C-L: see Documentary Studies 122S; also C-L: Visual Studies 103PS

129. **Gender, Work, and Organizations.** CCI, SS Research and theories on gender issues in the work organization. The socio-historical causes of gender segregation in the workplace and the contemporary consequences for wages and occupational status. Organizational and governmental work and family policies. Case studies of specific work organizations with gender-related problems are utilized in group projects and presentations. C-L: Markets and Management Studies. Instructor: Staff. One course. C-L: Markets and Management Studies

130S. **Women and the Professions.** EI, R, SS, W One course. C-L: see Education 149S

132A. **Methods of Social Research.** R, SS, W Principles of social research, design of sociological studies, sampling, and data collection with special attention to survey techniques. Instructor: Brady, George, Lin, or Morgan. One course.

132B. **Quantitative Analysis of Sociological Data.** QS, SS Introduction to quantitative analysis in sociological research, including principles of research design and the use of empirical evidence, particularly from social surveys. Descriptive and inferential statistics, contingency table analysis, and regression analysis. Emphasis on analysis of data, interpretation and presentation of results. Not open to students who have taken another 100-level Statistics course. Instructor: Staff. One course.

136. **Urban Education.** CCI, SS One course. C-L: see African and African American Studies 147; also C-L: Education 147, Children in Contemporary Society

138. **Theory and Society.** CCI, SS, W Selective survey of major classical and modern social theorists from the Enlightenment to the present. Attention to theories seeking to follow models of the natural sciences and those seeking a more critical and interpretive understanding of modern society. Sociological theory in relation to other modern currents, such as conservatism, socialism, existentialism, anti-colonialism, feminism, post-modernism. Two lectures and one discussion. Instructor: Moody. One course.

139. **Marxism and Society.** SS One course. C-L: see Literature 181A; also C-L: Cultural Anthropology 139, Education 139, History 186, International Comparative Studies

141. **Consuming Passions.** EI, R, SS How sociological theories and methods of analysis aid understanding of the causes and consequences of consumption in modern life, ranging from ethnographic observations of collecting to social surveys of shopping habits. The ethics of a culture where everything has its price and of a global order where consumerism is threatening local cultures. Research paper required. Instructor: Gao. One course. C-L: Markets and Management Studies, Ethics

142D. **Organizations and Global Competitiveness.** CCI, R, SS, STS Competition among national economies as understood in the context of social factors such as ethnicity, kinship, gender, and education, with a special emphasis on how technological change is reshaping the social, political, and economic bases of international competitiveness. Global industries in various regions of the world. Two research papers required, at least one of which involves the analysis of international trade data. Instructor: Gereffi. One course. C-L: Markets and Management Studies, International Comparative Studies
144. Technology and Organizational Environments. CCI, R, SS, STS How organizations (governments, private corporations, and non-profit organizations) are affected by the social, technological, and cultural environments in which they operate. Emphasis on how United States and Japanese cultures generate different modes of organization and differing environmental facilitators and obstacles. Competitive strategies (for example, mergers and takeovers) and the impact of technology on organizational structures (for example, the rapid diffusion of information technology). Research paper required, using either quantitative evidence or a case study approach. Instructor: Gao or staff. One course. C-L: Markets and Management Studies

145. Nations, Regions, and the Global Economy. CCI, R, SS The changing configuration of global capitalism, with emphasis on comparing global regions of North America, Latin America, Europe, Africa, and Asia. The internal dynamics of these regions, including the development strategies of selected nations, interregional comparisons (for example, regional divisions of labor, state-society relationships, the nature of their business systems, quality of life issues). Research paper required. Instructor: Gereffi or Hovsepian. One course. C-L: Markets and Management Studies, International Comparative Studies

149. Sexuality and Society. CCI, EI, R, SS Sociocultural factors affecting sexual behavior. Changing beliefs about sex; how sexual knowledge is socially learned and sexual identities formed; the relation between power and sex; control over sexual expression. Required participation in service learning. Instructor: Bach or staff. One course. C-L: Study of Sexualities, Women's Studies

150. The Changing American Family. CCI, R, SS The American family, its composition, functions, organization and perceived importance in the lives of people and in society. Changes -- especially the separation of marriage, childbearing, and child rearing -- examined with a view toward understanding the social forces behind them and the personal and social problems that arise in conjunction with the changes. Comparisons across social classes and ethnic and racial groups at different historic periods to show variations in their susceptibility to forces of change. Instructor: Burton or Morgan. One course. C-L: Women's Studies, Early Childhood Education, Children in Contemporary Society

151. Sociology of Religion. CCI, R, SS Classic social scientific answers to questions such as: the nature and origin of religion; its fate in modern societies. How social context shapes religious belief and practice, and how religion influences people, institutions, and societies. Attention paid to continuity and change in American religion. Instructor: Chaves. One course. C-L: Religion 161R

152S. Sociology through Photography. ALP, SS One course. C-L: see Documentary Studies 146S; also C-L: Visual Studies 103RS

153. Sport and Society. EI, R, SS Sport roles and sport institutions examined using the sociological perspective to help explain different patterns of involvement in sport, the social forces that have created sports organizations, and the consequences of sports participation. The ethical consequences of the modern pressures on athletes in schools and colleges and the commercialism of professional sport. Research paper required. Instructor: Staff. One course.

155. Organizations and Management. SS, STS Dimensions and aspects of modern organizations and concepts and tools for analyzing them. Special attention to the impact of changing social and technological environments on the evolution of organizational structures and strategies and on issues related to business ethics. The structure and operation of organizations; how organizations are managed by analyzing processes of organizational decision making; business case studies as illustrative of the concepts and the analytical tools. Instructor: Brady or Keister. One course. C-L: Markets and Management Studies, Women's Studies

155B. Organizations & Management in Global Capital Markets: an Ethical Perspective. EI, R, SS, STS Analysis of financial, political and social consequences of
business decisions made by financial institutions. How managers and corporations assess, envision and manage interactions with general, local, internal and natural environments within the current organizational structures of business, with focus on ethical perspectives. Examples and case studies of current decisions made by financial institutions will enhance critical thinking and reasoning to evaluate the process and consequences of these decisions. Offered only in the Duke in New York spring semester program. Instructor: Veraldi. One course. C-L: Markets and Management Studies

156. Global Contexts of Science and Technology. CCI, R, SS, STS National variations in the structure of scientific systems, and their consequences for the production and application of scientific knowledge. Particular attention to how these differences are shaped by cultural values and social institutions based on those values (politics, economics, education). Focus on recent developments in the biomedical sciences, such as genetic engineering and bio-ecology, and how they are incorporated into the scientific agendas of different cultures. Requires research paper addressing cross-cultural comparisons in the context of a selected scientific principle or technological development. Instructor: O’Rand. One course. C-L: Markets and Management Studies, Information Science and Information Studies

158. Markets and Marketing. CCI, R, SS, STS Markets as systems of social exchange: their organization and development with special reference to the role of technological change in market evolution in various parts of the industrialized world. Sociological analysis of contemporary marketing including cross-national comparisons and the role of internet technologies; researching and preparing a marketing plan. Coverage of marketing includes attention to issues of values and ethics. Instructor: Spenner or Reeves. One course. C-L: Markets and Management Studies

159. The Sociology of Entrepreneurship. CCI, SS Analysis of the psychological, religious, cultural, economic, political, and historical roots of entrepreneurship. Supply side and demand side perspectives. How to interpret theories at multiple levels of analysis to understanding entrepreneurship. Examines research on new business formation and the likelihood of success. Instructor: Staff. One course. C-L: Markets and Management Studies

160. Advertising and Society: Global Perspective. CCI, SS One course. C-L: see Cultural Anthropology 110; also C-L: English 120, Linguistics 120, Visual Studies 110E, Canadian Studies, International Comparative Studies, Film/Video/Digital, Markets and Management Studies, Policy Journalism and Media Studies, Women's Studies

160D. Advertising and Society: Global Perspective. CCI, SS One course. C-L: see Cultural Anthropology 110D; also C-L: English 120D, Linguistics 120D, Markets and Management Studies, Canadian Studies, International Comparative Studies, Film/Video/Digital

163. Aging and Health. EI, SS, W Illness and health care utilization among the elderly, comparison to other populations, gender and race differences, medicaid and medicaid, individual adjustment to aging and illness, social support for sick elderly, the decision to institutionalize, policy debate over euthanasia. Required participation in service learning. Instructor: George or Gold. One course. C-L: Health Policy


166. Politics and Markets in the Global Economy. SS Comparison of the politics and markets of countries and regions throughout the global economy. Exploration of sociological theories of markets and market formation and sociological theories of states and state formation studied through prominent debates and literatures in political sociology and
economic sociology, as well as some material in the sociology of inequality and globalization. Instructor: Brady. One course.

167. The Social Bases of Politics. SS
Political power, state action, political mobilization, and policy formation seen through the lens of sociological theory and research. Instructor: Staff. One course.

168. Business and Politics in American Society. EI, R, SS
The impact of business on American politics. Theories of political pluralism, state autonomy, capitalist imperatives, and elite domination; sources of corporate political community including shared interest, social class, and interlocking directives; a venues of influence including campaign contributions, lobbying, think tanks, advisory boards, and social networks. Development of research skill through team-based projects. Discussion and debate of ethical implications for business and policy leaders of the future. Instructor: Staff. One course. C-L: Markets and Management Studies

169. Psychosocial Aspects of Human Development. CCI, EI, SS
One course. C-L: see Human Development 180; also C-L: Psychology 130, Early Childhood Education, Ethics

170. Mass Media. CCI, SS, STS
The role of radio, the press, magazines, movies, and television. Selective audiences, content characteristics, controlling elements, and organizational structure of the various media. Relation of media technologies and their development to the organization of media consumption, media enterprises and their social impact. Comparative Canadian materials considered. Students are encouraged to examine how their own behavior relates to continuing conflict between free speech and demands for media control. Instructor: Staff. One course. C-L: Canadian Studies, International Comparative Studies, Film/Video/Digital, Information Science and Information Studies

171. Comparative Health Care Systems. CCI, EI, SS
One course. C-L: see Public Policy Studies 178; also C-L: Political Science 188, Canadian Studies, International Comparative Studies, Health Policy, Ethics, Global Health

173. Social Conflict and Social Movements. CCI, EI, R, SS
Theories and current research in the United States and Europe on a variety of social movements and cycles of social protest, such as student movements, civil rights, liberation movements, secession movements in Western and non-Western countries, ethnic nationalism, fundamentalism, the women's movement, and the environmental movement. The values of social movements that are in opposition to the prevalent norms and institutions of society. Research paper required. Instructor: Staff. One course.

180S. Sociology of the Middle East. CCI, SS
Sociological themes with reference to the transnational Arab Middle East that include culture, the family, social inequality, gender, socialization, development and underdevelopment, labor, migration and citizenship, political Islam, and social change. The issue of the Palestinians, often made central in the discourse on the Middle East. Instructor: Hovsepian. One course.

190AS. Sociology Honors Seminar. R, SS
Honors seminar for senior sociology major. Intensive research experience including topic selection, research design, data collection and analysis resulting in substantial, original paper. Research guidance and support provided by instructor and faculty advisor. Consent of instructor required. Instructor: Staff. One course.

190BS. Sociology Honors Seminar. SS, W
Continuation of Sociology 190A. Consent of instructor required. Instructor: Staff. One course.

191AS. Race, Rock, and Religion: Culture Wars in America. CCI, R, SS
Research approaches to contemporary cultural and political polarization in America. (Who likes hip-hop; who likes operas? Are these different people? Who goes to church? Who believes in evolution?) Patterns and social forces that unite a people, social forces that divide it; how social positions determine beliefs and cultural preferences. Instructor: Smith-Lovin. One course.
191BS. Gender, Labor, and Globalization. CCI, R, SS  Construction of gender influences, the incorporation of women into the global workforce, relocation of production under globalization influence, interconnections between work and gender. Instructor: Hovsepian. One course.

191CS. Cybernetworks. CCI, R, SS  The rapid, global growth of social relations and social networks on the Internet. Topics include the principles of interpersonal relations and social networks; the rise and development of the cyber space and of cybernetworks (social networks in the cyber space); types of cybernetworks (general, specialized); cybernetworks and other social domains (e.g., economics, politics); cybernetworks and interpersonal networks; cybernetworks, globalization, and localization; the future of cybernetworks. Instructor: Lin. One course.

191ES. Poverty Across Space and Race. CCI, R, SS  Family dynamics in poor communities in three rural and three urban regions in the United States. Students required to design a project, collect and analyze data, and write results resulting in a research paper. Instructor: Lawson-Clark. One course.

191S. Research Seminar: Topics Vary. R, SS  Directed research on a particular theme in a collaborative workshop using basic skills to assist in designing, carrying out, and writing up original research. A substantive paper with significant analysis and interpretation required. Themes vary semester to semester. Instructor: Staff. One course.

192. Independent Study for Nonmajors. Individual research and reading in a field of special interest, under the supervision of faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to qualified juniors and seniors. Consent of instructor and Director of Markets and Management Studies. Does not count toward the Sociology major. Instructor: Staff. One course.

193. Independent Study. Directed reading or individual projects under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194. Research Independent Study. Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

195S. Seminar in Special Topics. Seminar version of Sociology 198. One course.

196S. Seminar in Special Topics. Seminar version of Sociology 198. One course.

197S. Seminar in Special Topics. Seminar version of Sociology 198. One course.

198. Special Topics in Sociology. Topics vary each semester. Instructor: Staff. One course.

198S. Special Topics in Sociology. Seminar version of Sociology 198. One course.

199S. Sociology Internship. EI, R  Open only to sociology majors and minors. Requires eight to ten hours per week working in a community service agency; specific internship placement arranged with instructor to meet student's interest. Students keep a journal detailing their activities at the agency and verbally reflect on their experiences in seminar meetings. Topics include sociological issues related to organizations, work, diversity and inequality. Research paper required. Instructor: Bach or staff. One course.

For Seniors and Graduates

206. Sociological Theory. SS Structure, foundations, and historical antecedents of recent formulations of such theoretical approaches as phenomenological sociology, exchange theory, critical theory, structuralism, neo-Marxist sociology, sociobiology, and action theory. Instructor: Bonilla-Silva or Moody. One course.
208. Survey Research Methods. SS Theory and application of survey research techniques in the social sciences. Sampling, measurement, questionnaire construction and distribution, pretesting and posttesting, response effects, validity and reliability, scaling of data, data reduction and analysis. Instructor: Brady, Lin, or staff. One course.

211S. Proseminar in Sociological Theory. SS Selected topics in the development of sociological thought; systematic sociological theory; interrelations with other social and behavioral sciences. Background of sociology; formal aspects of theory: sociology of knowledge, evolutionary theory, sociobiology, and sociological theory. Instructor: Bonilla-Silva or Moody. One course.


213. Social Statistics II: Discrete Multivariate Models. QS Assumptions, estimation, testing, and parameter interpretation for the log-linear, logit, logistic, and probit models. Model comparisons; applications of statistical computing packages and programs. Prerequisite: Sociology 212 or equivalent. Instructor: Land or McPherson. One course.


217S. Proseminar in Social Statistics and Research Methods. SS Selected topics in the collection and analysis of social science data. Discrete and continuous models of measurement, hazards models, event history analysis, and panel data, dynamic models and time series analysis, research design, evaluation research methods, and social statistics and research methods. Instructor: Land, Lin, McPherson, or Moody. One course.

222S. Proseminar in Comparative and Historical Sociology. SS Selected topics in the differentiation and transformation of societies: theories of social change; globalization and comparative development; societal transformations and social institutions; culture, values, and ideas; social movements and political sociology; comparative social policies; comparative and historical sociology. Instructor: Bonilla-Silva, Brady, Gao, or Lin. One course.

223S. Proseminar in Crime, Law, and Deviance. SS Selected topics in crime and the institutions of social control: theories of crime causation; human development and criminal careers; social control and the criminal justice system; sociology of law; crime, law, and deviance. Instructor: Land. One course.

224S. Proseminar in Population Studies. SS Selected topics: population dynamics; mortality, morbidity, and epidemiology; urbanization and migration; demography of the labor force; demography of aging; population studies. Instructor: Burton, Land, Moody, Morgan, or O'Rand. One course.

225S. Proseminar in Economic Sociology. SS Selected topics: basic concepts, theories, and methods; organizations and institutions; social networks and social capital; globalization and markets; occupations and work. Instructor: Brady, Gao, Gereffi, Lin, Keister, Merkx, or Spenner. One course.
226S. Proseminars in Social Institutions and Processes. SS Selected topics in the sociology of institutions and social and institutional behavior: social networks; political sociology; sociology of religion; sociology of science; sociology of education. Instructor: Staff. One course.

227S. Proseminar in Medical Sociology. SS Selected topics in medical sociology: social structure and health; social behavior and health; organization and financing of health care; medical sociology (for example, social epidemiology, stress and coping, health and aging). Instructor: Burton, George, Gold, Lin, or Moody. One course.

228S. Social Stratification. SS Core and special topics in social stratification, including explanations for the existence, amount, and various dimensions of stratification in society; institutions that produce stratification; forces that cause the structure of stratification to vary both over time and across societies; and structures that govern social mobility within and across generations. Intergenerational mobility; social structure and the life course; social inequality and the structure of poverty; careers and labor markets; societal transformation; stratification and mobility research. Instructor: Brady, Keister, Lin, Spennner, or O’Rand. One course.

229S. Proseminar in Social Psychology. SS Selected topics in microsociology and social psychology, including social interaction, decision making, social exchange, group processes, intergroup relations, self and identity, social structure and personality, social networks, and application in organizations and health care. Introduction to social psychology; rational choice and social exchange; sociology of self and identity; group processes and intergroup relations; experimental research; practicum; social psychology. Instructor: Burton, George, Lin, Smith-Lovin, or Spennner. One course.

290S. Global Responses to the Rise of China. CCI, SS Issues on the impact of globalization on jobs and wages in advanced industrialized countries, the trend of regionalization in international political economy, the new strategies adopted by both advanced industrialized countries and developing countries under the WTO framework, South-North relationship in the era of globalization, the impact of outsourcing through globalization production networks on developing countries, comparative analysis of inequality, and other issues faced by developing countries today. Instructor: Gao. One course. C-L: Economics 267S


293S. Social Change, Markets, and Economy in China. CCI, SS Introduction to recent economic, social, and institutional changes in China, with focus on recent (post 1980) periods. Up-to-date descriptive reviews, empirical data, and discussions on historical background, current status, and future perspectives. Instructor: Yi. One course. C-L: Economics 269S

299S. Seminar in Selected Topics. Substantive, theoretical, or methodological topics. Instructor: Staff. One course.

THE MAJOR

Prerequisite. Sociology 10, 11, or an equivalent course with the consent of the director of undergraduate studies.

Major Requirements. Nine courses, eight of which must be at the 100-level or above, including Sociology 132A, Sociology 132B, Sociology 138, and a course involving a major research project (i.e., Sociology 190A/B, Sociology 191S, Sociology 193, or Sociology 199S). Students may substitute any 100-level statistics course for Sociology 132B with the consent of the director of undergraduate studies.

A Handbook for Sociology Majors, available in the office of the director of undergraduate studies, describes areas of concentration, the honors program, and the Sociology Union. It also describes the departmental advising system and the interests of the faculty.
THE MINOR

Requirements: Five courses, four of which must be at or above the 100 level. Only one transfer credit and no Advanced Placement credits may count toward the minor.

Spanish

For courses in Spanish, see “SPANISH (SPANISH)” on page 521, in Romance Studies.

Department of Statistical Science (STA)

Professor Gelfand, Chair; Professor of the Practice Stangl, Associate Chair and Director of Undergraduate Studies; Professor West, Director of Graduate Studies; Professors Berger, Clark, Dunson, Gefland, Kepler, West, Winkler, and Wolpert; Associate Professor Clyde; Assistant Professors Huber, Mukherjee, Reiter, and Schmidler; Professors Emeriti Burdick and Sacks; Professor of the Practice Banks; Associate Research Professor Iversen; Adjunct Professor Bayarri; Visiting Associate Professor Dinwoodie

A major or minor is available in statistical science.

The Department of Statistical Science coordinates teaching and research in the statistical sciences at Duke University. In its teaching and research, the department's faculty members emphasize modern statistical methods involving computationally intensive, stochastic modeling, coupled with interdisciplinary applications in many fields. The department also offers courses in basic statistical methods and advanced mathematical statistics.

10. Basic Statistics and Quantitative Literacy. QS Statistical concepts involved in making inferences, decisions, and predictions from data. Emphasis on applications, not formal technique. Prerequisite: Must have taken Placement test and placed in STA 10 or have declared a major. Not open to students who have had 100-level statistics course, Political Science 138, Psychology 117, or Sociology 133. Instructor: Staff. One course.


49S. First-Year Seminar. QS Topics vary each semester offered. Instructor: Staff. One course.


101. Data Analysis and Statistical Inference. QS First principles of quantitative arguments in the social and behavioral sciences and public policy. Topics include descriptive statistics, graphical methods, elementary probability, point and interval estimation, frequentist and Bayesian statistical inference and historical and philosophical developments of statistics. Applications in education, sports, law, environment, government, discrimination, psychology, sociology, and public policy. Prerequisite: STA 10, STA 19, placed in STA 101 by the Statistics placement test, or have declared a major by March 29, 2007. Not open to students who have credit for another 100-level statistics course. Instructor: Staff. One course. C-L: Information Science and Information Studies

102. Introductory Biostatistics. QS Reading and interpretation of statistical analyses from life science and medical literature. Conceptual bases for using data and understanding uncertainty when making treatment decisions about patients. Includes extensive reading and class discussion of articles from the medical literature. Topics include: basic concepts and tools of probability and conditional probability, independence, two-by-two tables, Simpson's paradox, medical diagnosis, ROC curves, study designs from medical problems, inference and hypothesis testing from RCT's, decision analysis and decision trees, and basic survival analysis. Emphasizes role of biostatistics, drug treating, and clinical trials in modern society. Prerequisite: Must have taken STA 10, STA 19 or taken Statistics placement test and placed in Sta 102, or have declared a major. Not open to students who have credit for another
100-level statistics course. Instructor: Staff. One course. C-L: Information Science and Information Studies

102B. Statistics in the Courtroom. QS Reading and interpretation of statistical analyses from court cases. Conceptual bases for using data and understanding uncertainty when making legal decisions. Includes reading and discussion of articles about legal cases. Topics include: basic concepts and tools of probability and conditional probability, and of statistical analysis including estimation, inference, prediction, and decision analysis. Not open to students who have credit for another 100-level statistics course. Instructor: Staff. One course.

103. Probability and Statistical Inference. QS Basic laws of probability—random events, independence and dependence, expectations, Bayes theorem. Discrete and continuous random variables, density, and distribution functions. Binomial and normal models for observational data. Introduction to maximum likelihood estimation and Bayesian inference. One- and two-sample mean problems, simple linear regression, multiple linear regression with two explanatory variables. Applications in economics, quantitative social sciences, and natural sciences emphasized. Prerequisites: Mathematics 31 or equivalent. Not open to students who have credit for another 100-level statistics course. Instructor: Staff. One course. C-L: Information Science and Information Studies

104. Probability. QS One course. C-L: see Mathematics 135; also C-L: Information Science and Information Studies

113. Probability and Statistics in Engineering. QS Introduction to probability, independence, conditional independence, and Bayes' theorem. Discrete and continuous, univariate and multivariate distributions. Linear and nonlinear transformations of random variables. Classical and Bayesian inference, decision theory, and comparison of hypotheses. Experimental design, statistical quality control, and other applications in engineering. Not open to students who have taken Statistics 112 or 213. Prerequisite: Mathematics 103 or equivalent. Instructor: Staff. One course. C-L: Information Science and Information Studies

114. Statistics. QS An introduction to the concepts, theory, and application of statistical inference, including the structure of statistical problems, probability modeling, data analysis and statistical computing, and linear regression. Inference from the viewpoint of Bayesian statistics, with some discussion of sampling theory methods and comparative inference. Applications to problems in various fields. Prerequisite: Mathematics 104 or equivalent and Mathematics 135/Statistics 104. Instructor: Staff. One course. C-L: Mathematics 136, Information Science and Information Studies


140. **Introduction to Statistical Decision Analysis.** QS Quantitative methods for decision making under uncertainty. Probability theory, personal probabilities and utilities, decision trees, ROC curves, sensitivity analysis, dominant strategies, Bayesian networks and influence diagrams, Markov models and time discounting, cost-effectiveness analysis, multi-agent decision making, game theory. Prerequisite: 100-level Statistics course. Instructor: Staff. One course.

145S. **Introduction to Statistical Consulting.** QS, R Participation by students in data analysis projects from the ISDS Statistical Consulting Center. Projects led and directed by ISDS faculty. Prerequisites: Statistics 122. Instructor: Staff. One course.

175S. **Computational Data Analysis.** QS Data analysis, exploration, and representation. Scientific modeling and computation. Data mining for large datasets, algebraic decomposition methods, stochastic simulation for temporal models of dynamic processes, graphical and network data, computational methods development. Problems and data drawn from ISDS research projects. Prerequisites: Statistics 122, some computer programming expertise. Instructor: Staff. One course.


190AS. **Research Seminar in Statistical Science I.** QS, R Statistical and mathematical underpinnings of methodological research in statistical science. Student presentations of their statistical research in collaboration with, and under the supervision of, an ISDS faculty mentor. Offered only in fall semesters. Permission of department required. Instructor: Staff. One course.

190BS. **Research Seminar in Statistical Science II.** QS, R, W Continuation of Statistics 190AS. Statistical and mathematical underpinnings of methodological research in statistical science. Student presentations of their statistical research in collaboration with, and under the supervision of, an ISDS faculty mentor. Consent of department required. Instructor: Staff. One course.

191. **Research Independent Study.** R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

193S. **Special Topics in Statistics.** QS, R Special topics not covered in core courses and more advanced topics related to current research directions in statistics. Consent of instructor required. Instructor: Staff. One course.

205. **Probability and Measure Theory.** QS Introduction to probability spaces, the theory of measure and integration, random variables, and limit theorems. Distribution functions, densities, and characteristic functions; convergence of random variables and of their distributions; uniform integrability and the Lebesgue convergence theorems. Weak and strong laws of large numbers, central limit theorem. Prerequisite: elementary real analysis and elementary probability theory. Instructor: Staff. One course.

207. **Probability.** QS One course. C-L: see Mathematics 287

213. **Introduction to Statistical Methods.** QS Emphasis on classical techniques of hypothesis testing and point and interval estimation, using the binomial, normal, t, F, and chi square distributions. Not open to students who have had Statistics 114 or Mathematics 136.
Prerequisite: Mathematics 103 (may be taken concurrently) or equivalent, or consent of instructor. Instructor: Staff. One course.


215. Statistical Inference. QS Classical, likelihood, and Bayesian approaches to statistical inference. Foundations of point and interval estimation, and properties of estimators (bias, consistency, efficiency, sufficiency, robustness). Testing: Type I and II errors, power, likelihood ratios; Bayes factors, posterior probabilities of hypotheses. The predictivist perspective. Applications include estimation and testing in normal models; model choice and criticism. Prerequisite: Statistics 213 and 244 or consent of instructor. Instructor: Staff. One course.

216. Generalized Linear Models. QS Likelihood-based and Bayesian inference of binomial, ordinal, and Poisson regression models, and the relation of these models to item response theory and other psychometric models. Focus on latent variable interpretations of categorical variables, computational techniques of estimating posterior distributions on model parameters, and Bayesian and likelihood approaches to case analyses and goodness-of-fit criterion. Theory and practice of modern regression modeling within the unifying context of generalized linear models. A brief review of hierarchical linear models. Students expected to use several software packages and to customize functions in these packages to perform applied analyses. Prerequisite: Statistics 213 and 244 or consent of instructor. Instructor: Staff. One course.

217. Ordinal Data Modeling. QS Bayesian and likelihood-based of ordered categorical data and rank data using latent variable constructs. Binary and ordinal regression models, multi-rater ordinal data models, multi-rater rank data models, item-response models, and graded-response models. MCMC estimation. Prerequisites: Statistics 213 or equivalent; working knowledge of a low-level computing language like C, C++, or Fortran. Instructor: Staff. One course.

218. Statistical Data Mining. QS Introduction to data mining, including multivariate nonparametric regression, classification, and cluster analysis. Topics include the Curse of Dimensionality, the bootstrap, cross-validation, search (especially model selection), smoothing, the backfitting algorithm, and boosting. Emphasis on regression methods (e.g., neural networks, wavelets, the LASSO, and LARS), classifications methods (e.g., CART, Support vector machines, and nearest-neighbor methods), and cluster analysis (e.g., self-organizing maps, D-means clustering, and minimum spanning trees). Theory illustrated through analysis of classical data sets. Prerequisites: Statistics 114. Instructor: Staff. One course. C-L: Computer Science 219

240. Applied Data Analysis for Environmental Sciences. QS One course. C-L: see Environment 210


244. Linear Models. QS Multiple linear regression and model building. Exploratory data analysis techniques, variable transformations and selection, parameter estimation and interpretation, prediction, Bayesian hierarchical models, Bayes factors and intrinsic Bayes factors for linear models, and Bayesian model averaging. The concepts of linear models from Bayesian and classical viewpoints. Topics in Markov chain Monte Carlo simulation introduced as required. Prerequisite: Statistics 213 and 290 or equivalent. Instructor: Staff. One course. C-L: Mathematics 217

250. Numerical Analysis. QS, R One course. C-L: see Computer Science 250; also C-L: Mathematics 221

253. Applied Stochastic Processes. QS One course. C-L: see Mathematics 216

277. Computational Structural Biology. One course. C-L: see Computational Biology and Bioinformatics 250

280. Spatial Statistics. QS Modeling data with spatial structure; point-referenced (geostatistical) data, areal (lattice) data, and point process data; stationarity, valid covariance functions; Gaussian processes and generalizations; kriging; Markov random fields (CAR and SAR); hierarchical modeling for spatial data; misalignment; multivariate spatial data, space/time data specification. Theory and application. Some assignments will involve computing and data analysis. Consent of instructor required. Instructor: Gelfand. One course.

281. Modern Nonparametric Theory and Methods. QS Modern nonparametric approaches for exploring and drawing inferences from data. Topics may include: resampling methods, nonparametric density estimation, nonparametric regression and classification, bootstrapping, kernel methods, splines, local regression, wavelets, support vector machines, nonparametric modeling for random distributions. Classical and Bayesian perspectives. Consent of instructor required. Instructor: Staff. One course.

290. Modern Statistical Data Analysis. QS Introduction to statistical thinking, data management and collection, sampling and design, exploratory data analysis, graphical and tabular displays, summarizing data. Introduction to applied work. Computer orientation, statistical packages and operating systems, especially unix on high-speed workstations, and the statistical package S-Plus. Graphics and numerical computing. Examples from various disciplines. Instructor: Staff. One course.

293. Special Topics in Statistics. Prerequisite: Statistics 213 or consent of instructor. Pass/Fail grading only. Instructor: Staff. One course.

294. Special Topics in Statistics. Prerequisite: Statistics 213 or consent of instructor. Pass/Fail grading only. Instructor: Staff. One course.

297. Topics in Probability Theory. QS One course. C-L: see Mathematics 288

THE MAJOR

The major in statistical science provides students with exposure to modern statistical reasoning and the skills needed to develop, analyze and utilize statistical techniques for addressing quantitative, data-based problems in the natural and social sciences. The course of study exposes students to a broad range of statistical methods using tools from mathematical and computational sciences. Students who complete the major in statistical science will be well prepared for careers in business, where they must appreciate and accommodate uncertainty in their decision-making, and for further study and embarking on research in science, law, business, or other fields.

As part of the course of study, majors in statistical science complete a research project under the supervision of a faculty member. These projects can involve the analysis of complex data, the development of new methods or theory, or the extension and evaluation
of existing techniques. The director of undergraduate studies links majors to a research mentor, who works with students to develop and complete the research project. Students earn credit for their research by taking Statistics 190AS and Statistics 190BS.

For the A.B. Degree

Prerequisites. Mathematics 31 (or 31L), 32 (or 32L or 32X), 103 (or 103X), and 104 (or 104C, 104X, or 107).

Major Requirements. Statistics 104/Mathematics 135. Statistics 114/Mathematics 136, or Statistics 213. Statistics 121 or Economics 139/239. Statistics 122, 190AS, and 190BS. Two additional courses above Statistics 114 (excluding 210, 213, 240, and 242). Only one independent study in statistical science can be used towards the major. Up to one statistical course from other departments can be used towards the major, provided the course is pre-approved by the director of undergraduate studies.

For the B.S. Degree

Prerequisites. Mathematics 31 (or 31L), 32 (or 32L or 32X), 103 (or 103X), and 104 (or 104C, 104X, or 107).

Major Requirements. Statistics 104/Mathematics 135. Statistics 114/Mathematics 136, or Statistics 213. Statistics 121 or Economics 139/239. Statistics 122, 190AS, and 190BS. Three additional courses above Statistics 114 (excluding 210, 213, 240, and 242). Only one independent study in statistical science can be used towards the major. Up to two statistical courses from other departments can be used towards the major, provided the courses are pre-approved by the director of undergraduate studies. One 100-level or higher course in an applied quantitative area other than statistical science, such as engineering, mathematics, one of the natural sciences, or one of the quantitative social sciences.

THE MINOR

The minor is designed to provide students in other disciplines with opportunities for exposure and skill development in advanced statistical methods. These are useful for conducting research in applied subjects, and they are appealing to employers and graduate schools seeking students with quantitative skills. The minor is flexible, so that students from most majors can find a path to the minor that serves their needs. The director of undergraduate studies assists students in selecting courses for the minor.

Prerequisites. Mathematics 31 (or 31L) and 32 (or 32L or 32X).

Requirements. Five additional courses in statistical science above the 100 level, only one of which can be from Statistics 101, 102, 102B, 103, or 113. Economics 139 can be used in place of Statistics 121. Up to two courses from other departments can be used towards the major, provided the courses are pre-approved by the director of undergraduate studies.

Theater Studies (THEATRST)

Professor Clum, Chair; Professor of the Practice Storer, Director of Undergraduate Studies; Professors Beckwith, Burian, Clum, Finucci, Moi, Porter, and Stiles; Associate Professors Shannon and Solterer; Assistant Professors Foster and Metzger; Professor Emeritus Randall; Professors of the Practice Bell, McAuliffe, Riddell, and Storer; Associate Professor of the Practice Damasceno; Adjunct Professor of the Practice Azenberg; Visiting Professor of the Practice Malone; Senior Lecturing Fellow Hemphill; Lecturing Fellows Benfey, and O’Berski

A major or a minor is available in this program.

Combining respect for history with immersion in contemporary issues, and intellectual engagement with creative expression, the Department of Theater Studies offers students a variety of opportunities to study and practice theater. The faculty view theater as a form of human expression, shaped by social, economic, technological, personal, and artistic forces.
Courses are designed to give majors a broad background necessary for advanced professional or scholarly work and to offer nonmajors the opportunity to deepen their understanding and appreciation of the theater. Guiding the work of the faculty is the belief that the theater is a collaborative art form that reaches out to other disciplines.

Courses in dramatic literature and the theater arts are complemented by productions of plays, past and present. This combination of academic coursework and production experience is a hallmark of the department’s approach. Its courses and productions are open to all undergraduates.

49S. First-Year Seminar. ALP Topics vary each semester offered. Instructor: Staff. One course.


89S. Special Topics in Theater Studies. Topics vary. May be repeated for credit. Instructor: Staff. One course.

91. Introduction to Theater. ALP, CCI An introduction to the study of theater. Aspects of play production, text analysis, and an introduction to the key periods in the history of theater (classical Greek, English Renaissance, modern European, and contemporary), including close analysis of representative plays. Attention given to theater as expression of different, specific cultural circumstances. Instructor: Staff. One course. C-L: English 94

95FCS. The Art of Transformation: A Workshop in Movement and Theater. ALP Movement, theater, music, and writing exercises, focusing on participants as individuals, as members of an ensemble, and within the context of their society. The work of Augusto Boal (Brazilian theater director, writer, and theorist). Theater and movement as tools for direct interaction with the Duke community. Open only to students in the Focus Program. Instructor: Staff. One course. C-L: Dance 95FCS

100S. Communication, Improvisation, and Business. ALP Communication skills and presence for leadership in the business world through empowerment of others. Use of theater techniques (presence, voice, body gesture, text presentation and listening) to teach methods of leadership, action, and self-expression that motivate for results, enhance collaboration, and heighten confidence in oneself and others. Instructor: Staff. One course.

101S. Special Topics in Reading Theater. ALP, CCI A series of special topics seminars focusing on close readings of dramatic texts with an eye to their realization in performance. Each seminar will center on a theme and draw from a variety of theatrical works from different periods in history and/or different countries. Topics include drama and theater, drama and gender, drama and ethics, drama and history. Instructor: Staff. One course.


103. American Drama and Film Since 1960. ALP Focus on works which reflect the changes in American society since 1960; civil rights, feminism, gay liberation, and issues like the Vietnam War and post Cold War American hegemony. Plays by Albee, Mamet, Rabe, Kushner, and others. Films including Dr. Strangelove, Easy Rider, Apocalypse Now, and Malcolm X. Instructor: Clum. One course. C-L: English 162C, Visual Studies 128C


106. Contemporary Theater in Production. ALP Analysis of how contemporary theater is received by audiences, especially the Broadway audience. Focus on text analysis of dramatic literature that has been or is likely to be produced on Broadway, in resident theaters in the United States, or on the West End in London. Weekly writing assignments allow
students to explore their responses to a range of contemporary dramatic literature. Not open to students who have taken the course as Theater Studies 131. Instructor: Staff. Half course.

107S. Radio: The Theater of the Mind. ALP, CZ The Golden Age of American Radio (1920-1960), explored through the lens of culture, ethics, and technology. An examination, considering race, gender, and class, of the ways in which radio, as both a new and evolving technology, helped to homogenize and diversify America's sense of itself during this ear. Includes wide range of radio genres from comedy to drama and music to news. Multimedia course, combining theory and performance; students create radio theater projects for the Web. Instructor: Foster. One course. C-L: Music 122S, Literature 132AS, English 134AS

109. Shakespeare before 1600. ALP, EI, R One course. C-L: see English 143; also C-L: Medieval and Renaissance Studies 182

110. Shakespeare after 1600. ALP, EI, R One course. C-L: see English 144; also C-L: Medieval and Renaissance Studies 183

113. British and Irish Drama: 1890-1950. ALP The works of Wilde, Shaw, Synge, O'Casey, Coward, Rattigan, and others. Instructor: Staff. One course. C-L: English 133A

114. After the Fall of the Empire: British and Irish Drama 1945 to the Present. ALP The work of Osborne, Pinter, Stoppard, Edgar, Hare, Churchill, Kane, Friel, McGuinness and others. Instructor: Staff. One course. C-L: English 133B

116. Theater in London: Text. ALP Lecture version of Theater Studies 116S/English 176B. Drama in performance from the Greeks to the present based on performances offered by the Royal Shakespeare Company, Royal National Theatre, and other theaters in London. Twenty plays will be seen and studied. (London Summer program.) Instructor: Clum. One course. C-L: English 176B

116S. Theater in London: Text (DS2, DS3, or DS4). ALP Drama in performance from the Greeks to the present based on performances offered by the Royal Shakespeare Company, Royal National Theatre, and other theaters in London. Twenty plays will be seen and studied. (London summer program.) Instructor: Clum. One course. C-L: English 176BS

117. Drama of Greece and Rome. ALP, CCI One course. C-L: see Classical Studies 106; also C-L: Visual Studies 108A

120. Twentieth Century French Theater. ALP, CCI, FL One course. C-L: see French 154

120S. The Italian Theater. ALP, CCI One course. C-L: see Italian 151S

122AS. The Actress: Celebrity and the Woman. ALP, CCI, CZ One course. C-L: see Russian 183S; also C-L: Women's Studies 183S

122S. Chekhov. ALP, CCI, W One course. C-L: see Russian 177S; also C-L: International Comparative Studies

123. Introduction to German Drama. ALP, CCI, FL One course. C-L: see German 133S; also C-L: International Comparative Studies

124. Modernist Classics. ALP, CCI One course. C-L: see Literature 155; also C-L: English 147

125S. Acting French. ALP, CCI, FL One course. C-L: see French 117S

126A. The Business of City Life. Half course. C-L: see English 181E

126S. Internship in New York. One course. C-L: see English 181CS

127S. What's Lost in Translation? Latin American Theater in English. ALP, CCI, CZ One course. C-L: see Spanish 129S; also C-L: International Comparative Studies 132S, Cultural Anthropology 135S


129. Special Topics in Dramatic Literature. ALP May be repeated for credit. Instructor: Staff. One course.
129B. Performance Traditions of the Middle East. ALP, CCI One course. C-L: see Literature 118; also C-L: Film/Video/Digital 114, Islamic Studies

129S. Special Topics in Dramatic Literature, History, Theory, or Criticism. ALP May be repeated for credit. Instructor: Staff. One course.

132. Gender in Dance and Theatre. ALP, CCI, CZ One course. C-L: see Dance 175; also C-L: Women's Studies 111, Cultural Anthropology 149A, Asian and African Languages and Literature 176, International Comparative Studies 170E, Study of Sexualities

132A. Asian American Theatre. ALP, CCI One course. C-L: see English 158

133. Dance and Dance Theater of Asia. ALP, CCI, CZ One course. C-L: see Dance 149; also C-L: Cultural Anthropology 149, Asian and African Languages and Literature 149, Religion 161C, International Comparative Studies 170C

134. History and Practice of the Dance and Dance-theatre of India. ALP, CCI, CZ One course. C-L: see Dance 147; also C-L: Cultural Anthropology 149B, Religion 161J, Asian and African Languages and Literature 154


137S. Screenwriting. ALP, W Advanced writing projects for feature film. Study of existing scripts and videos, application of techniques. Not open to students who have taken this course as FVD 107S. Instructor: Staff. One course. C-L: English 102S, Film/Video/Digital 131S

138S. Transforming Fiction for Stage and Screen. ALP, W Theory and practice of the process of adaptation of serious literary works of fiction to screenplay or play form. Reading and analysis of literary works adapted as screenplays and plays. Project in writing an adaptation. Consent of instructor required. Instructor: McAuliffe. One course. C-L: English 108BS, Film/Video/Digital 116S

139S. Special Topics in Dramatic Writing. ALP May be repeated for credit. Instructor: Staff. One course.

140S. Solo Performance. ALP, W The makings of solo performance. Creation of personal presentation through journal writing, memory exploration, and personal interests. Exploration of text through voice work, storytelling, and choreography of the solo performer through movement, gesture, and props. Previous theater or dance experience required. Instructor: Staff. One course. C-L: Dance 140S

141S. From Stories to Movies. ALP, W The creation of scenes: writing, framing, story boards, directing. Not open to students who have taken this course as FVD 119S. Instructor: Staff. One course. C-L: Dance 140S

144S. Drama as a Medium for Teaching and Learning. ALP, EI Study of use of drama as a teaching tool with service learning fieldwork in an area school. Consent of instructor required. Instructor: Staff. One course.

145S. Introduction to Acting. ALP, CCI The fundamentals of acting realism explored through exercises, scene study, and text analysis. Introduction to voice and movement training for the actor. Theory and text analysis studied in their historical context as well as their contemporary relevance. Instructor: Storer. One course.

146S. Shakespeare Studio. ALP Study in approaches to acting and directing Shakespeare text which focus on the actor's embodiment of text in ways which are organic, physical, and truthful. Use of text as the primary source for the actor's and director's work. Students will have opportunity to both act and direct in class exercises and projects. Extensive scenework. Prerequisite: Drama 131S or Theater Studies 145S and consent of instructor. Instructor: Staff. One course.
147S. Advanced Acting: Contemporary Texts. ALP Scene study based on reading, analysis, and research. Examination and development of performance/critical choices. Prerequisite: Drama 131S or Theater Studies 145S and consent of instructor. Instructor: McAuliffe or Storer. One course.

148S. Voice and Speech. ALP Introduction to vocal training techniques which facilitate the healthy use of the voice as an effective tool for communication. Much of the course content based upon the work of Kristin Linklater. Includes concepts developed by other major contemporary theorists/practitioners in voice and speech, phonetics, and the study and practice of stage dialects. Attention paid to the voice and its connections to the body and psyche; techniques for both “freeing” and “shaping” the voice. Emphasis on process-oriented, experimental activities, and collaboration. Instructor: Staff. One course.

149. Special Topics in Acting. ALP May be repeated for credit. Instructor: Staff. One course.

149A. Special Topics in Acting. ALP Topics vary each semester. Instructor: Staff. Half course.

149S. Special Topics in Acting. ALP May be repeated for credit. Instructor consent required. Instructor: Staff. One course.

150S. Voice and Body Gesture Theater. ALP Exercises designed for breath control, ear training and the spoken word, with emphasis on the theatrical use of the voice in gestural theater, in order to strengthen, free, and develop the natural range of the voice with the support of the body. Individual and ensemble work. Instructor: Staff. One course.

151. Theater in London: Performance. ALP Lecture version of Theater Studies 151S/English 176C. The stages of realization of a play or musical from the script to the production, focusing on productions in London. Aspects of theatrical performance through scene work, discussions, and workshops with British theater practitioners, observation of theater at work, and supervised projects. (London summer program.). One course. C-L: English 176C

151S. Theater in London: Performance. ALP The stages of realization of a play or musical from the script to the production, focusing on productions in London. Aspects of theatrical performance through scene work, discussions, and workshops with British theater practitioners, observation of theater at work, and supervised projects. (London summer program.) Instructor: Clum. One course. C-L: English 176CS


153S. Acting For the Camera. ALP Introduction to film and television acting. Not open to students who have taken this course as FVD 117S. Consent of instructor required. Instructor: Staff. One course. C-L: Film/Video/Digital 134S

155S. Directing. ALP Establishment of basic skills of information communication from script to stage to audience; analyzing texts from a director's point of view; basic stage articulation of viewpoint; development of skills in mechanics and staging techniques. Emphasis on scripts of poetic realists. Prerequisite: Drama 99S, Theater Studies 99S, Drama 131S, or Theater Studies 145S and consent of instructor. Instructor: McAuliffe or Storer. One course. C-L: Film/Video/Digital

159S. Special Topics in Directing. ALP Topics vary each semester offered. Instructor: Staff. One course.

160S. Lighting Design. ALP, R Introduction to the process and practice of lighting design for the theater. Focus on text analysis, research, design process, instrumentation, control, color, design documents, and realization of designs in the theater. Includes the study of principles and practices, labs in design imagery, and projects in lighting design. Prior
experience in theater production required. Instructor: Staff. One course. C-L: Visual Arts 163S

161S. Costume Design. ALP, R The process of designing costumes for the stage beginning with the fundamentals of design and the language of clothing. Reading of plays as basis for analysis and interpretation of text and character, conceptualization of design ideas, and directions for design research. Weekly lab providing experience with and an understanding of costume construction theory and methodology, including the use of costume shop tools and equipment. Instructor: Staff. One course. C-L: Visual Arts 161S

162S. Scene Design. ALP, R Study of theory and methodology of set design for stage through examination of historical and contemporary stage design as well as conceptualization, research, and development of design solutions for assigned plays. Instructor: Staff. One course. C-L: Visual Arts 162S

163S. Producing for the Theater. ALP The history and organization of profit and nonprofit theater in America. Methods and techniques for establishing and maintaining theater organizations. Practical application in connection with Department of Theater Studies productions. Instructor: Staff. One course. C-L: Public Policy Studies 170S

164S. Technical Theater. ALP Theoretical and aesthetic aspects of technical production for the theater its practical applications: artistic and budgetary assessment, tools and equipment, construction materials and techniques, and production implementation. Focus on costume, set, lighting, and sound designs of current Theater Studies productions. Instructor: Staff. One course.

165A. Professional Internship. Supervised work on a professional production; focus may be on acting, design, playwriting, theater administration, or stage management. Written analysis of both the process of producing as well as the final production. Consent of instructor required. Offered only on pass/fail basis. Half course. Instructor: Staff. Half course.

165B. Professional Internship. Same as 165A, but for work that extends over a full term. Consent of instructor required. Offered only on pass/fail basis. Instructor: Staff. One course.

168S. Entrepreneurship and International Arts Management. ALP, CCI Arts management theory and practices from a variety of cultures as they relate to entrepreneurship. Management of the creative process; the association between an entrepreneurial orientation and the organizational behavior and performance of nonprofit arts organizations. Instructor: Staff. One course. C-L: Markets and Management Studies

169S. Special Topics in Design, Management, and Production. ALP Topics in aspects of theatrical design and/or theater production and management, and their history, culture, and technology. May be repeated for credit. Instructor: Staff. One course.

171. Introduction to Film. ALP One course. C-L: see Literature 110; also C-L: English 101A, Film/Video/Digital 101, Visual Studies 121A, Policy Journalism and Media

172. Studies in Film History. ALP One course. C-L: see English 185; also C-L: Literature 116, Film/Video/Digital 105, Visual Studies 115A

172A. Italian Cinema. ALP, CCI One course. C-L: see Italian 132; also C-L: Literature 112K, Film/Video/Digital 111E, Visual Studies 126A

173S. Introduction to Production. ALP, STS One course. C-L: see Film/Video/Digital 130S; also C-L: English 183S, Visual Studies 117AS, Information Science and Information Studies

175A. Global Performance from late 1950s to the Present. ALP, CCI, CZ, EI One course. C-L: see Visual Studies 181; also C-L: English 172C, Information Science and Information Studies 175, Literature 133C, Women's Studies 176

176. Criminality of Art. ALP The artistic process itself as an act of violation (works from the nineteenth and twentieth centuries). A study of plays (Brecht, Williams, Genet, Synge), films (The Killing of a Chinese Bookie; Henry; Portrait of a Serial Killer; King of Comedy;
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Peeping Tom), fiction (Mao II; Wittgenstein's Nephew; and Bartleby the Scrivener) and non-fiction (Narrative of the Life of Frederick Douglass, an American Slave). Instructor: Lentriccia and McAuliffe. One course. C-L: English 134B, Literature 131C, Visual Studies 128F


178. Special Topics in Film. ALP Topics vary. Instructor: Staff. One course.

178S. Special Topics in Film. ALP Topics Vary. Instructor: Staff. One course.

179S. Masculine Anxiety and Male-Male Desire in Drama and Film Since 1950. ALP, CCI Drama and film that deals with two related issues: masculine anxiety, which can be defined as anxiety about losing one's masculinity, and male-male desire. Works ranging from the 1950s (Tennessee William's Cat on a Hot Tin Roof) to the 1970s (Deliverance and The Deer Hunter) that problematize the relationship between male bonding and homophobia. Depictions of male-male desire and its relationship to masculinity, love, family, community, politics in plays and films from the United States, England, France, Italy, Spain, China, Taiwan, Argentina, and Mexico. Instructor: Clum or Metzger. One course. C-L: English 175S, Literature 125AS, Visual Studies 128GS

180. Special Topics: Theater Studies Workshop. ALP Research, study, and exploration of a selected dramatic text or texts, other performance material, and/or particular aspects of performance (historical, cultural, textual, or stylistic). Emphasis on the process of investigating a text - both in theory and in practice. Culminates in performance or presentation. May be repeated for credit. Consent of instructor required. Instructor: Staff. One course.

182. New Works in Process Workshop. ALP The development and staging of new plays from their first draft to production in the New Works Festival. Participation in the Festival (as directors, playwrights, actors, dramaturgs, designers, or stage managers). May be repeated for credit. Instructor: Storer and staff. One course.

183A. Musical Theater Workshop: Performance. ALP A workshop in honing the skills necessary to perform in a musical. Students required to present one cabaret of numbers from contemporary musicals and a workshop performance of a musical. Consent of instructor required. Instructor: Clum and staff. One course. C-L: Music 188A

183B. Musical Theater Workshop: Creation. ALP A workshop on the creation and presentation of musicals culminating in a workshop presentation of short musicals written by the class. Consent of instructor required. Instructor: Clum and Kelly. One course. C-L: Music 188B

184. Cabaret Workshop. ALP, CCI Creation of a cabaret performance (solos and ensemble work) borrowing elements drawn from comedy, drama, music, dance, as well as other contemporary performable art forms, using European Cabaret form at the turn of the twentieth century where social commentary, debate, questioning and provocation prevailed, as a model. Instructor: Staff. One course.

185A. Special Topics: Theater Studies Production. ALP, CCI Students participate in the production of a theatrical text for public performance. Students analyze, research, rehearse, and produce a play under the direction of a member of the Theater Studies faculty or a guest professional. Students may focus on acting, directing, design, dramaturgy, management, or production; specific area of focus will be determined through audition and/or arrangement with the instructor. Consent of instructor required. May be repeated for credit. Instructor: Staff. One course.

186S. Ethical Stages. ALP, EI, R, W Works of dramatic literature in which characters face ethical challenges; profession of theater, and ethical dilemmas faced by artists at key
historical/political moments over the past century. Consent of instructor required. Instructor: Staff. One course. C-L: Literature 131ES

189S. Senior Colloquium. ALP, R Major research project in production (acting, directing), critical writing, dramatic writing, or design. Instructor: McAuliffe. One course.

191. Research Independent Study. R Individual research in a field of special interest, under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and director of undergraduate studies required. Instructor: Staff. One course.

194T. Tutorial. Tutorial under the supervision of a faculty member for two or more students working on related independent projects. Consent of instructor required. Instructor: Staff. One course.

197. Senior Distinction Project. Consent of instructor required. Instructor: Staff. One course.

229. Special Topics in Dramatic Literature. ALP Topics vary by semester. Consent of instructor required. Instructor: Staff. One course.

229S. Special Topics in Dramatic Literature. ALP Instructor: Clum or Foster. One course.

231S. Domesticity, Gender and Realism in the Twentieth Century American Drama. ALP Uses of domestic realism and the family romance to place the American family at the center of a wider social critique. Changing notions of gender roles. Alternatives to the conventional nuclear family. Instructor: Clum. One course. C-L: English 231S

233S. Performance Studies. ALP Introduction to theatrical transformations of traditional notions of drama into the broader category of performance, and to the performative field that seeks to understand them. Topics include the crossing of formal boundaries, the development of new technical possibilities, the role of uncertainty in the process of making a performance, and the purposes of performance, which range from the social to the spiritual and from the political to the personal. Theoretical readings and performances including works by Wagner, Artaud, Brecht, Benjamin, Chaplin, O'Neill, Stanislavski, Barthes, and Anderson. Instructor: Foster. One course. C-L: Literature 233S

THE MAJOR

The major in Theater Studies offers students instruction in both 1) the relationship of theater to the cultures that produce and consume it through the study of dramatic literature, history, and theory; and 2) the collaborative theater arts (writing, acting, design, directing, production), with a particular interest in the ways in which these two areas inform each other. While the Theater Studies major offers students preparation for graduate study, advanced theater training, or entry-level work in theater and related professions, it also offers a basic understanding and appreciation of the literature, history, and practice of theater for a student who desires a liberal arts education.

Major Requirements.

Two Theater Studies 101S “Reading Theater” Seminars, each on a different topic; or Theater Studies 116S “Duke in London (strongly recommended) and one Theater Studies 101S “Reading Theater” Seminar

135S: Dramatic Writing
145S: Introduction to Acting
155S: Directing
One 100-level design class
189S: Senior colloquium
Three additional 100-level courses in Theater Studies
Departmental Graduation With Distinction

Students with at least a B average in their Theater Studies courses are eligible to apply for a project. They should acquire the Policy for Graduation with Distinction in Theater Studies and an application form from the Theater Studies office. The student's proposed project needs the approval of the project supervisor and the director of undergraduate studies. All projects must be approved by registration in the spring semester of the year prior to the project.

A student may pursue a project in writing, directing, design, acting, dramatic literature, theater history, or dramatic theory. All projects must have a research and a substantial written component. They may also have a production component. Distinction projects are granted one course credit in the fall (Theater Studies 197) and the remaining work will be completed in conjunction with Senior Colloquium in the spring.

The student's written work and production project will be reviewed by a committee (approved by the director of undergraduate studies) comprised of the project supervisor, the director of undergraduate studies, and a third faculty member in Theater Studies or a related field. A meeting of the committee and the student to evaluate the project will be part of the evaluation process. The committee will decide whether the student receives distinction and what level of distinction the student will receive. No special courses are required, though there are prerequisites for distinction projects. See the Policy for Graduation with Distinction in Theater Studies for specific prerequisites.

THE MINOR

One Theater Studies 101S "Reading Theater" Seminar or Theater Studies 116S, "Duke in London." Four additional 100-level courses in Theater Studies.

Visual Studies

For courses in Visual Studies, see Art, Art History, and Visual Studies on page 126.

Women's Studies (WOMENST)

Professor Khanna (English), Director; Professor Wiegman; Associate Professors Campt, Khanna, Rudy, Weeks, and Wilson; Affiliated faculty: Professors Allison (cultural anthropology), Edwards (history), Holloway (English), Silverblatt (cultural anthropology), and Wald (English); Associate Professors Fulkerson (divinity), Lubiano (African and African American Studies), Nelson (cultural anthropology), Piot (African and African-American Studies), Sigal (history), and Yoda (Asian and African languages and literature); Assistant Professors Mottahedeh (literature) and Stein (cultural anthropology); Adjunct faculty: Associate Professor Curtain (University of North Carolina); Adjunct Assistant Professors Gokariksel (University of North Carolina) and Lisker

A major and a minor is available in this program.

Women’s Studies is part of a historical educational enterprise inaugurated by social movement and dedicated to the study of identity as a complex social phenomenon. In the field’s first decades, feminist scholarship reoriented traditional disciplines toward the study of women and gender and developed new methodologies and critical vocabularies that have made interdisciplinarity a key feature of Women’s Studies as an autonomous field. Today, scholars continue to explore the meaning and impact of identity as a primary – though by no means transhistorical or universal – way of organizing social life by pursuing an intersectional analysis of gender, race, sexuality, class, and nationality. In the classroom, as in its research, its goal is to transform the university’s organization of knowledge by reaching across the epistemological and methodological divisions of historical, political, economic, representational, technological and scientific analysis. In the program’s dual emphasis on interdisciplinarity and intersectionality, it offers students new knowledge about identity while equipping them with a wide range of analytical and methodological skills.
The courses listed below are offered by Women’s Studies (WOMENST) or by other academic departments and programs. For a more detailed description of each course, contact the Women’s Studies office or the appropriate department or program office.

**Women's Studies Core Courses (WOMENST)**

**49S. First Year Seminar in Gender Studies. SS** New concepts and themes in gender and feminist studies. Topics may vary each semester. Instructor: Staff. One course.

**50. Duke-Administered Study Abroad: Special Topics in Women's Studies. CCI** Topics differ by section. Instructor: Staff. One course.

**90. Gender and Everyday Life. CCI, SS** Introduction to the way Women's Studies as an interdisciplinary field studies gender in its complex intersection with race, class, and sexuality. The sex/gender distinction; biological determinism, ideology, commodity culture, essentialism and social construction; the sexual division of labor; colonization and post-coloniality, imperialism, racialization; and heteronormativity. Instructor: Staff. One course.

**95FCS. Special Topics in Focus.** Seminar for students in Focus Program only. Topics vary each semester offered. Instructor: Staff. One course.


**101S. Animals and Ethics: Welfare, Rights, Utilitarianism, and Beyond. CCI, EI, SS** The ways humans depend on animals for a variety of products and information, with questions about the morality of specific uses. The origin of the contemporary animal rights movement through the lens of ethical theories, Kantianism, rights approaches, abolition, Peter Singer, and utilitarianism. The role of animal welfare through the nineteenth and twentieth centuries, viewed internationally, including comparison of welfare versus rights agendas. Postmodern and feminist alternatives to existing theories. Animal law and the question of legal standing for animals. Benefits and limits of environmentalism as a mode of animal advocacy. Instructor: Rudy. One course. C-L: Public Policy Studies 106S

**109S. Introduction to Study of Sexualities. CZ** One course. C-L: see Study of Sexualities 115S

**111. Gender in Dance and Theatre. ALP, CCI, CZ** One course. C-L: see Dance 175; also C-L: Theater Studies 132, Cultural Anthropology 149A, Asian and African Languages and Literature 176, International Comparative Studies 170E, Study of Sexualities

**112. Gender and Morality: Indian Perspectives. ALP, CCI, CZ, EI** One course. C-L: see Religion 116A


**117. Gender and Culture. CCI, SS** One course. C-L: see Cultural Anthropology 113; also C-L: International Comparative Studies 101E, Study of Sexualities

**118S. Gender and Genomics. CCI, SS** Interdisciplinary approach to gender and genomic science, with attention to key feminist debates about biological diversity, essentialism and social construction, evolution, "the human," race, medical ethics, the political economy of health care, disease. Instructor: Staff. One course.

**129. Seventeenth-century Fictions of Women. ALP, CCI, FL** One course. C-L: see French 129

**130. Women and the Political Process. R, SS** A systematic analysis of the U.S. political system, electoral politics, platform implications, and leadership trends in the context of
women's role in political life, as voters, leaders, and citizens. Instructor: Staff. One course.
C-L: Political Science 130

137. African American Women and History. CCI, CZ One course. C-L: see African and African American Studies 137; also C-L: History 145C

142. Girl Culture, Media, and Japan. ALP, CCI, CZ One course. C-L: see Asian and African Languages and Literature 142; also C-L: Literature 165G

147. Women in the Economy. CCI, EI, R, SS One course. C-L: see Economics 147

150. Selected Topics in Women's Studies. Topics vary, focusing on interdisciplinary work arising from feminist scholarship. Instructor: Staff. One course.

150S. Selected Topics in Women's Studies. Seminar version of Women's Studies 150. Instructor: Staff. One course.

151. Contemporary Israeli Cinema. ALP, CCI, EI One course. C-L: see Asian and African Languages and Literature 161; also C-L: Film/Video/Digital 111H, Literature 112M, Jewish Studies 140, Cultural Anthropology 161

160S. Feminism in Historical Contexts. CCI, CZ, SS, W Comprehensive introduction to feminist theoretical conceptions of the social, the political, the economic and the human. The rise of gender based discourses and social movements studied in the context of broader considerations of modernity, democracy and liberal humanism and the value of rights discourse for feminist agendas, using cross-cultural and historical analysis. Instructor: Staff. One course.

161. Money, Sex, Power. CCI, CZ, SS Same as Women's Studies 161S except instruction provided in lecture format. Instructor: Staff. One course.

161S. Money, Sex and Power. CCI, CZ, SS Capitalism as a historical force in its relation to gender and race structures. The intellectual history provided by Marxist critiques of capital for the development of a distinct body of feminist materialist thought, including dual systems theory, ideology critique, poststructuralist understandings of language and culture, and the rise of globalization as the latest economic context in which to think about gender, material life and power. Instructor: Staff. One course. C-L: Study of Sexualities

162. Gender and Popular Culture. CCI, SS Same as Women's Studies 162S except instruction is provided in lecture format. Consent of instructor required. Instructor: Staff. One course. C-L: Visual Studies 129A

162S. Gender and Popular Culture. CCI, SS An analytic investigation of ways popular cultural forms produce and reinforce gender relations. Prerequisite: Women's Studies 90 or 160 or consent of instructor. Instructor: Staff. One course. C-L: Visual Studies 129AS

163S. Interpreting Bodies: Identity and Beyond. CCI, SS How the body has come to define the human in language, law, science, politics and economics. The body's relation to identity and subjectivity. The representation of the body in particular cultural discourses and the social history and dynamic in which that representation has taken place. Prerequisite: Women's Studies 90 or 160 or consent of instructor. Instructor: Staff. One course.

164S. Race, Gender, and Sexuality. CCI, SS Gender's relationship to race and sexuality explored through a variety of issues, including health, intimacy, family, the state, economic practices, transnational communities and identities, and social movement. Instructors: Pierce-Baker, Wiegman, Rudy, and staff. One course.

165. Gender and Political Theory. CCI, SS Feminist analyses of and engagements with some of the canonical texts and traditional concepts of Western political theory. Feminist contributions to, challenges to, and revisions of the terms of key conceptual and political debates in political theory. Instructor: Weeks. One course. C-L: Political Science 143

168. Experimental Art and Its Ethics since 1945. ALP, CCI, CZ, EI One course. C-L: see Art History 168; also C-L: Literature 133B, International Comparative Studies 101A, Ethics
171. **Advanced Topics in Feminist Studies.** Instructor: Staff. One course.

172S. **Popular Fictions.** ALP One course. C-L: see Literature 151BS; also C-L: English 171BS

174. **Gender and Language.** CCI, R, SS One course. C-L: see Russian 174; also C-L: Cultural Anthropology 174, English 115, Linguistics 174

175. **Feminism and Visual Culture.** ALP, CCI, CZ One course. C-L: see Visual Studies 180; also C-L: Literature 133A

175S. **Photographing the Lives of Women and Girls.** ALP One course. C-L: see Documentary Studies 119S; also C-L: Visual Arts 113S, Visual Studies 103ES

176. **Global Performance from late 1950s to the Present.** ALP, CCI, CZ, EI One course. C-L: see Visual Studies 181; also C-L: English 172C, Information Science and Information Studies 175, Literature 133C, Theater Studies 175A

179. **Melodrama East and West.** ALP, CCI One course. C-L: see Asian and African Languages and Literature 179; also C-L: Literature 151J, International Comparative Studies 170A, Visual Studies 105E

180S. **Gender and Cross Cultural Experience.** CCI, R, SS Designed for students who have studied or lived abroad. Reflection on their experience abroad in the contexts of gender, race, class, sexuality, conflicting cross-cultural values, as well as issues of identity. Focus on a major research paper arising from the student's experience. Instructor: Sieburth, or staff. One course. C-L: Romance Studies 170S, International Comparative Studies 103GS

181S. **Travel, Gender, and Power.** One course. C-L: see Cultural Anthropology 191QS; also C-L: Asian and African Languages and Literature 157S, Literature 132BS

183S. **The Actress: Celebrity and the Woman.** ALP, CCI, CZ One course. C-L: see Russian 183S; also C-L: Theater Studies 122AS

185S. **Community Action and Social Change.** CCI, R, SS Focus on projects undertaken in various communities to achieve social justice, with attention to community action in Durham and the surrounding areas. The ways people mobilize to challenge hierarchies of class, gender, race, generation, and sexuality. A cross-cultural view of contemporary social dilemmas. Instructor: Staff. One course.


188S. **Gender and Sexuality in the Ancient World.** ALP, CCI, CZ, R One course. C-L: see Classical Studies 185S

189. **Gender and Sexuality in Latin America.** CCI, CZ, SS One course. C-L: see Cultural Anthropology 191J; also C-L: International Comparative Studies 130B, Latin American Studies, Study of Sexualities

191. **Independent Study.** Directed reading in a field of special interest under the supervision of a faculty member, resulting in a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Consent of instructor and program director required. Instructor: Staff. One course.

192. **Research Independent Study.** R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to juniors. Consent of instructor and program director required. Instructor: Staff. One course.

193. **Research Independent Study.** R Individual research in a field of special interest under the supervision of a faculty member, the central goal of which is a substantive paper or written report containing significant analysis and interpretation of a previously approved topic. Open to seniors. Consent of instructor and program director required. Instructor: Staff. One course.
Women's Studies Courses Across Disciplines

The following courses count toward a major or minor when taught by faculty affiliated with Women's Studies and/or approved by a Women’s Studies faculty advisor. There are additional courses that count toward the major, and students should contact the Women's Studies office for a complete list updated each semester.

**African and African American Studies**
115A. History of Africa: From Antiquity to Early Modern Times
115B. History and Modern Africa

**Art History**
167. Modernism, Avant-gardism, and Visual Art, 1900-1945
187. Dada and Surrealism

**Cultural Anthropology**
110. Advertising and Society: Global Perspective
113. Gender and Culture
116S. Advertising and Masculinity
126. Muslim World: Transformations and Continuities
141. Self and Society

**English**
120. Advertising and Society: Global Perspective
321. Studies in Renaissance Literature

**Film/Video/Digital**
104. Film Theory

**French**
160. Topics in Sexuality and Gender Studies

**History**
115A. History of Africa: From Antiquity to Early Modern Times
115B. History and Modern Africa
International Comparative Studies
351. Colloquia
101E. Gender and Culture
101F. Muslim World: Transformations and Continuities
182B. Italian Women Writers

Italian
135. Italian Women Writers
137. Modernism, Avant-gardism, and Visual Art, 1900-1945

Jewish Studies
40. Judaism
103. Women in the Biblical Tradition: Image and Role

Linguistics
120. Advertising and Society: Global Perspective

Literature
114. Film Theory
123. Special Topics in Women Writers
125. Special Topics in Gender and Sexuality

Medieval and Renaissance Studies
234A. Early Christian Asceticism

Philosophy
122. Philosophical Issues in Feminism
203S. Contemporary Ethical Theories

Political Science
187. Politics and the Libido
289S. Contemporary Ethical Theories

Psychology and Neuroscience
106. The Psychology of Gender
113A. Self and Society
116. Social Psychology
150S. Hormones and Behavior (B, P)
180S. Advanced Topics in the Psychology of Gender
208S. Seminar in Emotion (D, P)

Public Policy Studies
140S. Women as Leaders

Religion
40. Judaism
119. Muslim World: Transformations and Continuities
125. Women and Sexuality in the Christian Tradition
138. Gender in Religion in the United States
234. Early Christian Asceticism

Russian
169. Women and Russian Literature
269. Women and Russian Literature

Sociology
106. Social Psychology
111. Wealth, Power, and Inequality
118. Sex, Gender, and Society
149. Sexuality and Society
150. The Changing American Family
155. Organizations and Management
160. Advertising and Society: Global Perspective

Study of Sexualities
195S. Senior Seminar in Study of Sexualities

Visual Studies
110E. Advertising and Society: Global Perspective
House Courses. Women's Studies regularly sponsors house courses. While house courses do not officially count toward the major or the minor, students are strongly encouraged to consider them as valuable supplements to full-credit courses. Lists of house courses are available in the program office at the beginning of each semester.

THE MAJOR

To major in women’s studies, a student must take a minimum of ten courses. Gender and Everyday Life (Women’s Studies 90) and a senior seminar (Women’s Studies 195S) are required, along with three of the following:

160. Feminism in Historical Context
161. Money, Sex, Power
161S. Money, Sex, Power
162. Gender and Popular Culture
162S. Gender and Popular Culture
163S. Interpreting Bodies: Identity and Beyond
164S. Race, Gender, and Sexuality.

The remaining five courses are electives and may be chosen from the following Women’s Studies offerings (or from the list of recommended courses on the Women’s Studies Web site):

116. Gender, Science, Technology, and Society
130. Women and the Political Process
150. Selected Topics in Women’s Studies
174. Gender and Language
175. Feminism in Art
180S. Feminism and Cross Cultural Experience
193, 194. Research Independent Study.

Students may take no more than two independent study courses, which must be approved by the Director of Undergraduate Studies. In addition, students may petition for credit for courses offered in other departments and programs, with clear documentation of their intellectual value to the overall goals of the major.

Advising

Each year, faculty affiliated with women’s studies serve as advisors for students majoring in women’s studies. Majors are paired with faculty advisors on the basis of students’ general areas of interest. Students majoring in women’s studies are encouraged to seek out and work with any of the women’s studies faculty in addition to their primary faculty advisor.

Departmental Graduation with Distinction

Qualified students earning a major may be eligible for Graduation with Distinction in women’s studies. More detailed guidelines are available in the program office. Students interested in being considered for distinction should contact the program office no later than the spring of their junior year.

THE MINOR

For the minor, students complete five courses. Gender and Everyday Life (Women’s Studies 90) is required, along with two courses from the following:

116. Gender, Science, Technology, and Society
160. Feminism in Historical Context
161. Money, Sex, Power
161S. Money, Sex, Power
162. Gender and Popular Culture
162S. Gender and Popular Culture
163S. Interpreting Bodies: Identity and Beyond
164S. Race, Gender, and Sexuality.
In addition, students choose two courses from the following Women’s Studies offerings (or from the list of recommended courses on the Women’s Studies Web site):
130. Women and the Political Process
150. Selected Topics in Women’s Studies
174. Gender and Language
175. Feminism in Art
180S. Feminism and Cross Cultural Experience.
In addition to offering courses, and a major and minor representing a focus in women’s studies, the program sponsors lectures, films, discussions, conferences, internships, and work-study opportunities. Additional information on courses, the women’s studies major or minor, and other opportunities in women’s studies is available at the Women’s Studies office, 210 East Duke Building, or the web-site: www.duke.edu/womstud/.

University Writing Program (WRITING)
Associate Professor Harris, Director of the University Writing Program; Senior Lecturing Fellow Comer, Director of First-Year Writing; Senior Lecturing Fellow Moskovitz, Director of Writing-in-the-Disciplines; Senior Lecturing Fellow Russell, Director of the Writing Studio; Professor of the Practice Gopen; Assistant Professor of the Practice Hillard; Lecturing Fellows Beaule, Caputo, Case, Cooke, Dowland, Drogan, Ennis, Harms, Kane, Klaits, Kraus-Friedberg, Odendahl-James, Reaves, Rego, Ryan, Smith, Thrall, Verhoeven, Vidra, Wesolowski, and Wilhite

The University Writing Program has three components: (1) the First-Year Writing Program (Writing 20), (2) the Writing-in-the-Disciplines Program, and (3) the Writing Studio, a tutorial service for undergraduates.

All undergraduates are required to complete Writing 20: Academic Writing in the fall or spring of their first year at Duke. They are also required to take two writing-designated courses in the disciplines. The University Writing Program reviews these Writing-in-the-Disciplines courses and provides support for the faculty teaching them. The Writing Studio offers free tutoring to students working on writing for any course they are taking at Duke.

The various sections of Writing 20 are taught by an interdisciplinary faculty and focus on issues in the sciences, social sciences, or arts and humanities. While specific readings and writing assignments vary with the instructor, the aim of all sections is to introduce students to the practices of critical reading and writing that characterize university study.

20. Academic Writing. Instruction in the complexities of producing sophisticated academic argument, with attention to critical analysis and rhetorical practices. Instructor: Staff. One course.

191. Research Independent Study. R, W Individual investigation, reading, and writing under the supervision of a faculty member leading to a substantial written document. Prerequisite: Writing 20. Consent of instructor and Director of University Writing Program required. Instructor: Staff. One course.

Pratt School of Engineering
Professor Katsouleas, Dean; Senior Associate Dean for Education Laursen; Associate Deans Franzoni and Simmons; Assistant Dean Absher
• For courses in Engineering (Interdepartmental), see page 581.
• For courses in Biomedical Engineering, see page 584.
• For courses in Civil and Environmental Engineering, see page 593.
• For courses in Electrical and Computer Engineering, see page 602.
• For courses in Mechanical Engineering and Materials Science, see page 614.
10. Introduction to Engineering. This course is designed to introduce students to the study and practice of engineering. Presentations will be made by representatives of all four engineering departments as well as outside practitioners, researchers, and industrial leaders. Selected group design and/or laboratory modules will be required of all participants. Pass/fail grading only. Instructor: Staff. Half course.

20L. Engineering Innovation. Introduces freshmen to the process of team-based creative conceptualization, visualization prototyping, and product realization. Students use computer-aided design tools to create custom circuit boards and computer numerically controlled (CNC) machined components to produce prototype systems. Design concepts are introduced and supported through hands-on assignments. Instructor: Twiss and Simmons. One course.

24. Introduction to Environmental Engineering and Science. Materials and energy balances applied to environmental engineering problems. Water pollution control, applied ecology, air quality management, solid and hazardous waste control. Environmental ethics. {1.0 ES} Prerequisite: Chemistry 11L. Instructor: Peirce. One course.

25L. Introduction to Structural Engineering. An introduction to engineering and the engineering method through a wide variety of historical and modern case studies, ranging from unique structures like bridges to mass produced objects like pencils. Instructor: Petroski. One course.

31. Engineering The Planet. This seminar examines the environmental impacts of large infrastructure from dam construction, to large-scale farming and irrigation, clear-cutting of natural forests, and extensive urbanization of land-margin ecosystems. Focus on the social and engineering make-up of global environmental change and water resources. Introduction to the science and technology of environmental adaptation and sustainability. Students will organize in small research groups working on trans-disciplinary case-studies. Instructor: Barros. One course.

32F. Mapping Engineering into Biology. Students will be introduced to the new and exciting ways in which we can start to bring engineering and biology together. The course asks fundamental questions such as "How did Nature solve problem X?" and "What are the problems that Nature has?" and explore how to forward engineer new products and processes inspired by Nature's own solutions. The seminar will give students a foundation to achieve technological innovation through effective channeling of creativity and scientific principles. The class divides in teams and ranges of expertise and interest in biology, chemistry, physics, mathematics, and engineering are encouraged to join in. Instructor consent required. Instructors: Needham and Bonaventura. One course.

49S. First-Year Seminar. Topics vary each semester offered. Instructor: Staff. One course.

53L. Computational Methods in Engineering. Introduction to computer methods and algorithms for analysis and solution of engineering problems using numerical methods in a workstation environment. Topics include: numerical integration, roots of equations, simultaneous equation solving, finite difference methods, matrix analysis, linear programming, dynamic programming, and heuristic solutions used in engineering practice. This course does not require any prior knowledge of computer programming. Instructor: Gustafson. One course.

54L. Simulations in JAVA. Development of interactive computer simulations in JAVA using Reality.java, a library that includes graphical objects such as spaceships, planets, and standardized functions for Newtonian mechanics. Introduction to object-oriented programming, linked and inherited structures, and aspects of computational mathematics such as stability and computational error, orbital mechanics, collision detection, strategy, etc. Prerequisite: Engineering 53L or Computer Science 6 or Computer Science 100E. Instructor: Stetten. One course.
60. Science and Policy of Natural Catastrophes. NS, SS, STS In this interdisciplinary course students will conduct a life cycle analysis of a natural disaster. Invited experts will discuss meteorologic, hydrologic and geologic factors that cause disasters; explore how societies plan for and/or respond to the immediate and long-term physical, social, emotional and spiritual issues associated with survival; and present case studies of response, recovery and reconstruction efforts. Students will attend the lecture component of the course and complete on-line quizzes to demonstrate understanding of the material presented. Additionally, they will prepare on individual paper (~ 10 pages) on a relevant topic and one group paper, the results of which will be presented to the class. Instructor: Schaad. One course. C-L: Public Policy Studies 107, Environment 161

61. Natural Catastrophes: Rebuilding from Ruins. NS, SS, STS Research Service Learning Gateway course where students will conduct a life cycle analysis of natural disasters. Invited experts will discuss meteorologic, hydrologic and geologic factors that cause disasters; explore how societies plan and/or respond to the immediate and long-term physical, social, emotional and spiritual issues associated with survival; and present case studies of response, recovery and reconstruction efforts. Students will attend the lecture component of the course and complete on-line quizzes to demonstrate understanding of the material presented. For the service learning experience, students will carry out response activities over Spring Break in an area ravaged by a natural disaster. They will keep a journal (audio and written) of their activities, write a brief synopsis (4-5 pages), and make a group oral presentation of their findings following their return. They will also submit a hypothetical research proposal for a project which might stem from the course and their experiences. Instructor: Schaad. One course. C-L: Public Policy Studies 109, Environment 162

75L. Mechanics of Solids. Analysis of force systems and their equilibria as applied to engineering systems. Stresses and strains in deformable bodies; mechanical behavior of materials; applications of principles to static problems of beams, torsion members, and columns. Selected laboratory work. Prerequisites: Mathematics 32 and Physics 61L. Instructor: Albertson, Dolbow, Gavin, Hueckel, Laurser, Nadeau, or Virgin. One course.

107. Mapping Engineering onto Biology for Health, Disease, and Bio-Inspired Medicine and Technology. Introduction to concepts and implementation of Mapping Engineering onto Biology. Explores both a new learning paradigm as well as methodologies for reverse engineering biological systems. Uses a Bow-Tie Hierarchy of scale applying traditional design methodology in order to reverse engineer healthy functioning systems that represent Problems Nature Solved (Engineering Biology) and Problems Nature Has (i.e. we have in disease) (Engineering Pathology). Third (inventive) phase is to forward engineer new approaches to medicine or new technologies. Students in design teams of four, carry out course assignment that asks a different and interesting to the student, problem nature solved? Out-of-class open counseling with instructors and expert faculty across campus. Consent of instructor required. Instructor: Staff. One course. C-L: Biomedical Engineering 183

108S. Ethics in Professions: Scientific, Personal and Organizational Frameworks. EI, STS Ethics studied through the analysis and interpretation of case studies from the scientific and engineering professions. Topics include: moral development; concepts of truth and fairness; responsible conduct of research; the person and virtues; confidentiality; risk and safety; social responsibility; etiology and consequences of fraud and malpractice; legal aspects of professionalism, and allocation of resources. The capstone course for students completing the certificate in the Program in Science, Technology, and Human Values. Instructor: Vallero. One course. C-L: Markets and Management Studies, Global Health, Ethics, Global Health

115. Engineering Systems Optimization and Economics. SS Introduction to mathematical optimization, engineering economic analysis, and other decision analysis tools used to evaluate and design engineering systems. Application of linear and nonlinear programming, dynamic programming, expert systems, simulation and heuristic methods to engineering systems design problems. Applications discussed include: production plant scheduling,
water resources planning, design and analysis, vehicle routing, resource allocation, repair and rehabilitation scheduling and economic analysis of engineering design alternatives. Corequisite: Mathematics 107 or 111. Instructor: Peirce. One course. C-L: Economics 112

119L. Electrical Fundamentals of Mechatronics. Introduction to mechatronics with a special emphasis on electrical components, sensing, and information processing. Topics include circuit analysis and design, system response characterization, conversion between digital and analog signals, data acquisition, sensors, and motors. Laboratory projects focus on analysis, characterization, and design of electrical and mechatronic systems. Prerequisites: EGR 53L, EGR 75L, MATH 103, and PHYSICS 62L, or equivalents, or permission of instructor: Instructor: Gustafson. One course.

123L. Dynamics. Principles of dynamics of particles, rigid bodies, and selected nonrigid systems with emphasis on engineering applications. Kinematic and kinetic analysis of structural and machine elements in a plane and in space using graphical, computer, and analytical vector techniques. Absolute and relative motion analysis. Work-energy; impact and impulse-momentum. Laboratory experiments. Prerequisites: Engineering 75L and Mathematics 103 or consent of instructor. Instructor: Dowell, Hall, Knight, or Virgin. One course.


153. Numerical Computing for Engineers. Numerical computing with applications for engineering in a C/C++ language environment. Computer programs will be developed to implement numerical algorithms and solve engineering problems. Course topics include: solution of simultaneous sets of equations, eigenvalues, singular value decomposition, root-finding in non-linear equations, solution of ordinary differential equations, optimization, and spectral analysis. Prerequisites: Math 107 or 111 and either Engineering 53, Computer Science 6, Computer Science 100 or equivalent. Instructor: Cartee. One course.

165. Special Topics in Engineering. Study arranged on special engineering topics in which the faculty have particular interest and competence as a result of research or professional activities. Consent of instructor(s) required. Quarter course, half course, or one course. Instructor: Staff. Variable credit.

171. Total Quality Systems. An interdisciplinary approach to principles and practice in the applications of total quality concepts to engineering operations and business management; practice in using tools of statistical process control; practice in using quality tools of management and operations; principles of continuous quality improvement; definitions and applications of Total Quality Management (TQM); case studies; personal effectiveness habits and social styles; assignments and projects in team building using tools learned, communication; group problem solving; practice in professional verbal and written technical communications. Prerequisite: junior or senior standing. Instructor: Staff. One course.

175. Aesthetics, Design, and Culture. An examination of the role of aesthetics, both as a goal and as a tool, in a culture which is increasingly dependent on technology. Visual thinking, perceptual awareness, experiential learning, conceptual modeling, and design will be explored in terms of changes in sensory environment. Design problems will be formulated and analyzed through individual and group design projects. Instructor: Staff. One course. C-L: Visual Studies 114A

176S. Global Climate Change. A project course. Examination of scientists' concerns about global warming, the controversy about whether the effect is real, "greenhouse gases," which may cause warming of the globe, and the impacts that scientists believe will occur. Topics include sea rise, effects on human health, and impacts on food supply. Student projects will
focus on the potential engineering solutions such as renewable energy (solar, wind). Prerequisite: junior or senior standing. Instructor: Strohbehn. One course.

183. Projects in Engineering. Courses in which engineering projects of an interdisciplinary nature are undertaken. The projects must have engineering relevance in the sense of undertaking to meet human need through a disciplined approach under the guidance of a member of the engineering faculty. Consent of instructor required. Instructor: Staff. One course.

184. Projects in Engineering. Courses in which engineering projects of an interdisciplinary nature are undertaken. The projects must have engineering relevance in the sense of undertaking to meet human need through a disciplined approach under the guidance of a member of the engineering faculty. Consent of instructor required. Instructor: Staff. One course.

Biomedical Engineering (BME)

Professor Truskey, Chair; Associate Professor Wolf, Director of Undergraduate Studies; Assistant Professor of the Practice Gimm, Associate Director of Undergraduate Studies; Professors R. Anderson, Barr, R. Clark, Chilkoti, Dewhirst, Erickson, Friedman, Gauthier, Glower, Guilak, Henriquez, Jaszcak, Johnson, Katz, Laursen, Leong, Myers, Needham, Nicolelis, Norle, Reichert, Simon, S. Smith, Trahey, Vo-Dinh, von Ramm, and Zalutsky; Associate Professors Collins, Dobbins, Grill, Izatt, Krasowska, Lobach, MacFall, Ramanujam, Setton, Song, Tornai, Toth, and Yuan; Assistant Professors Bursac, Idriss, K. Knightingale, Samei, Tian, Wax, Wong, and You; Professors Emeriti Burdick, Clark, Hammond, Hochmuth, McElhaney, and Plonsey; Associate Research Professors R. Nightingale and Turkington; Assistant Research Professors Bohs, Carlson, Chen, Henderson, Klitzman, Liu, Lo, Owen, and Zhu; Professor of the Practice Malkin; Adjunct Professors Goldberg, Grinstaff, Oliver, and Taylor

A major is available in this department. The biomedical engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.*

Biomedical engineering is the discipline in which the physical, mathematical, and engineering sciences and associated technology are applied to biology and medicine. Contributions range from computer modeling and simulation of physiological systems through development of medical instrumentation and experimental research to solutions of practical clinical problems. The goal of the Biomedical Engineering Program at Duke University is to prepare students for professional employment in areas such as the medical device industry, engineering consulting, and biotechnology; graduate work in biomedical engineering; or entrance into medical school. The program is flexible and designed to match the student’s interests. Options exist for dual majors and to provide specific knowledge in biomedical imaging and measurement systems, biomaterials and biomechanics, bioelectricity, and molecular, cellular and tissue engineering. Design experience is developed and integrated throughout the curriculum and includes capstone design courses. Many students gain valuable design experience in the course of independent student projects within the research laboratories and programs of the Biomedical Engineering Department.

The undergraduate curriculum specifies that a student select one of four Areas of Interest in which to obtain depth in their education. The Areas of Interest are matched to the laboratories and expertise of the faculty in the Department. They are: Bioelectricity, Biomaterials and Biomechanics, Molecular Cellular and Tissue Engineering, and Imaging and Measurement Systems.

Biomedical engineering in bioelectricity involves the use of large-scale computer modeling, scientific visualization, and experimental data acquisition and analysis of

* Engineering and Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) 111 Market Place, Suite 1050, Baltimore, MD 21202, telephone (410) 347-7700
electrical activity in the brain and heart tissue, to increase basic understanding of normal
and abnormal behavior. Other projects involve the study of the effects of externally applied
electric fields and radio frequency energy on activity in excitable tissue.

The ultrasound imaging and transducer laboratories are directed toward new signal and
image processing techniques, new system architecture and transducer designs to develop
novel imaging methods and improve image quality and spatial resolution. The laboratories
are equipped with a variety of state-of-the-art ultrasound imaging instruments, electronics
and transducer fabrication tools, acoustic and transducer modeling software as well as video
and display hardware.

The biophotonics group develops novel photonics technologies for biological and
medical applications. Research areas include optical imaging techniques, advanced
spectroscopy methods, plasmonics applications, and new microscopy modalities.
Applications span from cell and developmental biology to clinical diagnostics and imaging
methods.

The biomechanics laboratories use advanced experimental test facilities, data
acquisition technologies, computer simulations and theoretical modeling in the study of
cells, tissues, and biological structures. The mechanisms of injury, aging, degeneration, and
mechanical signal transduction are studied in a variety of biological systems, including
biological fluids, the cervical and lumbar spines, diarthrodial joints, and the heart.

Molecular, cellular and tissue engineering is concerned with the regulation of the
external and internal cellular environment of the cell for control of biosynthesis and
degradation activities, as well as determination of the factors responsible for differentiation
of cells into tissues with varying functional requirements. The groups in this program
investigate biomaterials, material property characterizations, surface modifications, cell
cultures, and the mechanics of biofluids, tissues, and cells. Applications include the
development of novel biosensors and drug delivery systems, new techniques for enhanced
biological transport, and improved techniques for stimulated repair or inhibited degradation
of biological tissues.

Instruction in all these areas is offered at the undergraduate as well as graduate and
postdoctoral levels, and opportunities for undergraduate student research are available in
most of the biomedical engineering laboratories. The courses offered by the Department of
Biomedical Engineering are listed below. Some biomedical engineering courses require
students to have a suitable laptop computer with wireless capabilities.

Course Designators:
(AC) Satisfies an Area Core Class
(DR) Satisfies the Design requirement
(GE) Satisfies a General BME Elective
(BB) Satisfies a Biomechanics and Biomaterials Area Elective
(MC) Satisfies a Molecular, Cellular and Tissue Engineering Area Elective
(EL) Satisfies a Bioelectricity Area Elective
(IM) Satisfies an Imaging and Measurement Systems Area Elective

8. Biomedical Device Design (GE). An introduction to the origin and characteristics of
biologic signals and the features of biomedical systems and devices, from sensor to display/
output. Concepts of analog vs. discrete signals, simple detection schemes, sampling, data
reduction, filtering, visualization, and imaging techniques are presented. The course
emphasizes team project and system design. Prerequisite: Engineering 53L or equivalent;
limited to freshmen. Instructor: Henriquez or K. Nightingale. One course.

83L. Introduction to Biomaterials. The principles of materials science and engineering
with particular attention to topics most relevant to biomedical engineering. The structure-
property relationships of metals, ceramics, polymers, and composites as well as skin, bone,
cartilage, ligament, and vasculature; extensive treatment of the properties unique to
materials' surfaces. Behavior of materials in the physiological environment. Prerequisites:

100L. Modeling Cellular and Molecular Systems. An introduction to the application of engineering models to study cellular and molecular processes and develop biotechnological applications. Topics covered include chemical equilibrium and kinetics, solution of differential equations, enzyme kinetics, DNA denaturation and rebinding, the polymerase chain reaction (PCR), repressor binding, gene expression, receptor-mediated endocytosis, and gene delivery to tissues and cells. Selected laboratory experiments apply concepts learned in class. Prerequisites: Mathematics 103 and Biology 25L or equivalent. Instructor: Gimm, Tian, Truskey, You, or Yuan. One course.

101L. Electrobiology. The electrophysiology of excitable cells from a quantitative perspective. Topics include the ionic basis of action potentials, the Hodgkin-Huxley model, impulse propagation, source-field relationships, and an introduction to functional electrical stimulation. Prerequisites: Biomedical Engineering 153L, and Mathematics 107 or 111. Instructor: Barr, Bursac, Grill, Henriquez, or Krassowska. One course.

110L. Introductory Biomechanics. This course is designed to give students in Biomedical Engineering basic training in statics, dynamics, solid mechanics, and mechanical design with applications to the human body. Areas of focus include the determination of the state of stress and strain, experimental measurement in biomechanical systems, mechanical and biomechanical failure criterion, human tolerance, and injury risk. Prerequisites: Mathematics 32 and Physics 61L. Instructor: Myers, R. Nightingale, or Setton. One course.

153L. Biomedical Electronic Measurements I. Basic principles of electronic instrumentation with biomedical examples. Concepts of analog signal processing, filters, input and output impedances are emphasized. Students are exposed to system design concepts such as amplifier design and various transducers. Laboratories reinforce basic concepts and offer the student design opportunities in groups. Prerequisite: Physics 62L. Instructor: Grill, Izatt, Malkin, K. Nightingale, or von Ramm. One course.

154L. Biomedical Electronic Measurements II. Further study of the basic principles of biomedical electronics with emphasis on transducers, instruments, micro-controller and PC based systems for data acquisition and processing. Laboratories focus on measurements and circuit design emphasizing design criteria appropriate for biomedical instrumentation. Prerequisite: Electrical and Computer Engineering 62L or Biomedical Engineering 153L and Biomedical Engineering 171 or Electrical and Computer Engineering 64 . Instructor: Malkin, Trahey, Wax, or Wolf. One course.

155. Safety of Medical Devices (GE, IM). Engineering analysis of the safety of medical devices such as prosthetic heart valves, silicon breast implants, medical imaging, and cardiac pacemakers. Engineering performance standards and US FDA requirements for clinical trials for selected medical devices such as medical diagnostic ultrasound, surgical lasers, and prosthetic heart valves. Students will prepare a mock application for FDA premarket approval to demonstrate safety of a selected medical device. Prerequisite: sophomore standing; corequisite: Physics 62L or equivalent. Instructor: S. Smith. One course.

165. Intermediate Topics (GE). Intermediate subjects or selective topics related to programs within biomedical engineering. Consent of instructor required. Instructor: Staff. One course.

171. Signals and Systems. Convolution, deconvolution, Fourier series, Fourier transform, sampling, and the Laplace transform. Continuous and discrete formulations with emphasis on computational and simulation aspects and selected biomedical examples. Prerequisites: Physics 62 or Biomedical Engineering 153 or Electrical and Computer Engineering 61 or and Mathematics 107 or 111 or equivalents. Instructor: Barr, Izatt, or Krassowska. One course.

190. Projects in Biomedical Engineering (GE). For juniors and seniors who express a desire for such work and who have shown aptitude for research in one area of biomedical engineering. Consent of instructor required. Instructor: Staff. One course.
engineering. Reserved for Engineering Undergraduate Fellows. Consent of program director required. Instructor: Staff. One course.

191. Projects in Biomedical Engineering (GE). For juniors and seniors who express a desire for such work and who have shown aptitude for research in one area of biomedical engineering. Consent of instructor required. Instructor: Staff. One course.

192. Projects in Biomedical Engineering (GE). For juniors or seniors who express a desire for such work and who have shown aptitude for research in one area of biomedical engineering. Consent of instructor required. Instructor: Staff. One course.

193. Projects in Cardiovascular Biomedical Engineering (GE). Projects in emerging cardiovascular technologies. Primarily for Engineering Research Center fellows who express a desire for and who have shown aptitude for research in emerging cardiovascular technologies. Consent of instructor required. Instructor: Staff. One course.

194. Projects in Cardiovascular Biomedical Engineering (GE). Projects in emerging cardiovascular technologies. Primarily for Engineering Research Center fellows who express a desire for and who have shown aptitude for research in emerging cardiovascular technologies. Consent of instructor required. Prerequisite: Biomedical Engineering 193. Instructor: Staff. One course.

195. Projects in Cardiovascular Biomedical Engineering (GE). Projects in emerging cardiovascular technologies. Primarily for Engineering Research Center fellows who express a desire for and who have shown aptitude for research in emerging cardiovascular technologies. Consent of instructor required. Prerequisite: Biomedical Engineering 194. Instructor: Staff. One course.

201L. Electrophysiology (AC or GE). The electrophysiology of excitable cells from a quantitative perspective. Topics include the ionic basis of action potentials, the Hodgkin-Huxley model, impulse propagation, source-field relationships, and an introduction to functional electrical stimulation. Students choose a relevant topic area for detailed study and report. Not open to students who have taken Biomedical Engineering 101L or equivalent. Instructor: Barr, Bursac, Grill, Henriquez, or Krassowska. One course.

202L. Fundamentals of Biomaterials and Biomechanics (AC or GE). This course will cover principles of physiology, materials science and mechanics with particular attention to topics most relevant to biomedical engineering. Areas of focus include the structure-functional relationships of biocomposites including biological tissues and biopolymers; extensive treatment of the properties unique to biomaterials surfaces; behavior of materials in the physiological environment, and biomechanical failure criterion. The course includes selected experimental measurements in biomechanical and biomaterial systems. Prerequisites: Math 108, Engineering 75, Mechanical Engineering 83, and Chemistry 22L or the equivalent. Instructor: Staff. One course.

204. Measurement and Control of Cardiac Electrical Events (GE, IM, EL). Design of biomedical devices for cardiac application based on a review of theoretical and experimental results from cardiac electrophysiology. Evaluation of the underlying cardiac events using computer simulations. Examination of electrodes, amplifiers, pacemakers, and related computer apparatus. Construction of selected examples. Prerequisites: Biomedical Engineering 101L and 153L or equivalents. Instructor: Wolf. One course.

206. Elasticity (GE, BB). Linear elasticity will be emphasized including concepts of stress and strain as second order tensors, equilibrium at the boundary and within the body, and compatibility of strains. Generalized solutions to two and three dimensional problems will be derived and applied to classical problems including torsion of noncircular sections, bending of curved beams, stress concentrations and contact problems. Applications of elasticity solutions to contemporary problem in civil and biomedical engineering will be discussed. Prerequisites: Undergraduate partial differential equations or equivalent math course, Introductory Mechanics of Solids. Instructor: Myers. One course. C-L: Civil Engineering 206
207. Transport Phenomena in Biological Systems (AC or GE, BB). An introduction to the modeling of complex biological systems using principles of transport phenomena and biochemical kinetics. Topics include the conservation of mass and momentum using differential and integral balances; rheology of Newtonian and non-Newtonian fluids; steady and transient diffusion in reacting systems; dimensional analysis; homogeneous versus heterogeneous reaction systems. Biomedical and biotechnological applications are discussed. Prerequisites: Biomedical Engineering 100L and Mathematics 108. Instructor: Friedman, Katz, Truskey, or Yuan. One course. C-L: Civil Engineering 207, Mechanical Engineering and Materials Science 207

208. Theoretical and Applied Polymer Science (GE, BB). One course. C-L: see Mechanical Engineering and Materials Science 211

210. Molecular Basis of Membrane Transport (GE, MC, EL). Transport of substances through cell membranes examined on a molecular level, with applications of physiology, drug delivery, artificial organs and tissue engineering. Topics include organization of the cell membrane, membrane permeability and transport, active transport and control of transport processes. Assignments based on computer simulations, with emphasis on quantitative behavior and design. Prerequisites: Biology 25L or equivalent, Mathematics 107 or equivalent. Instructors: Friedman or Krassowska. One course.

211. Theoretical Electrophysiology (GE, EL). Advanced topics on the electrophysiological behavior of nerve and striated muscle. Source-field models for single-fiber and fiber bundles lying in a volume conductor. Forward and inverse models for EMG and ENG. Bidomain model. Model and simulation for stimulation of single-fiber and fiber bundle. Laboratory exercises based on computer simulation, with emphasis on quantitative behavior and design. Readings from original literature. Prerequisite: Biomedical Engineering 101L or 201L or equivalent. Instructor: Barr or Krassowska. One course.

212. Theoretical Electrocardiography (GE, EL). Electrophysiological behavior of cardiac muscle. Emphasis on quantitative study of cardiac tissue with respect to propagation and the evaluation of sources. Effect of junctions, inhomogeneities, anisotropy, and presence of unbounded extracellular space. Bidomain models. Study of models of arrhythmia, fibrillation, and defibrillation. Electrocardiographic models and forward simulations. Laboratory exercises based on computer simulation, with emphasis on quantitative behavior and design. Readings from original literature. Prerequisite: Biomedical Engineering 101L or 201L or equivalent. Instructor: Barr. One course.


215. Biomedical Materials and Artificial Organs (GE, BB). Chemical structures, processing methods, evaluation procedures, and regulations for materials used in biomedical applications. Applications include implant materials, components of ex vivo circuits, and cosmetic prostheses. Primary emphasis on polymer-based materials and on optimization of parameters of materials which determine their utility in applications such as artificial kidney membranes and artificial arteries. Prerequisite: Biomedical Engineering 83L and 100L or their equivalent or consent of instructor. Instructor: Reichert. One course. C-L: Mechanical Engineering and Materials Science 215

216. Transport Phenomena in Cells and Organs (GE, MC). Applications of the principles of mass and momentum transport to the analysis of selected processes of
biomedical and biotechnological interest. Emphasis on the development and critical analysis of models of the particular transport process. Topics include: reaction-diffusion processes, transport in natural and artificial membranes, dynamics of blood flow, pharmacokinetics, receptor-mediated processes and macromolecular transport, normal and neoplastic tissue. Prerequisite: Biomedical Engineering 207 or equivalent. Instructor: Truskey or Yuan. One course.

218. Biotechnology and Bioprocess Engineering (GE, BB, MC). Introduction to the engineering principles of bioprocess engineering. Topics include: introduction to cellular and protein structure and function; modeling of enzyme kinetics, DNA transcription, metabolic pathways, cell and microbial growth and product formation; bioprocess operation, scale-up, and design. Class includes a design project. A modern biotechnology process or product is identified, the specific application and market are described (for example, medical, environmental, agricultural) along with the engineering elements of the technology. Prerequisite: Biomedical Engineering 83L or Mechanical Engineering 83L. Instructor: Chilkoti or Reichert. One course.

220L. Introduction to Biomolecular Engineering (GE, BB, MC). Structure of biological macromolecules, recombinant DNA techniques, principles of and techniques to study protein structure-function. Discussion of biomolecular design and engineering from the research literature. Linked laboratory assignments to alter protein structure at the genetic level. Expression, purification, and ligand-binding studies of protein function. Consent of instructor required. Instructor: Chilkoti. One course.

222. Principles of Ultrasound Imaging (GE, IM). Propagation, reflection, refraction, and diffraction of acoustic waves in biologic media. Topics include geometric optics, physical optics, attenuation, and image quality parameters such as signal-to-noise ratio, dynamic range, and resolution. Emphasis is placed on the design and analysis of medical ultrasound imaging systems. Prerequisites: Mathematics 107 or 111 and Physics 62L. Instructor: von Ramm. One course.

227L. Design in Biotechnology (DR or GE, MC, BB). Design of custom strategies to address real-life issues in the development of biocompatible and biomimetic devices for biotechnology or biomedical applications. Student teams will work with a client in the development of projects that incorporate materials science, biological transport and biomechanics. Formal engineering design principles will be emphasized; overview of intellectual properties, engineering ethics, risk analysis, safety in design and FDA regulations will be reviewed. Oral and written reports, and prototype development will be required. This course is intended as a capstone design course for the upper-level undergraduate biomedical engineering students with a focused interest in biomolecular science, biotechnology, transport, drug delivery, biomechanics and related disciplines. Prerequisites: BME 207, Statistics 113, or equivalent. Instructors: Gimm. One course.

228. Laboratory in Cellular and Biosurface Engineering (GE, MC). Introduction to common experimental and theoretical methodologies in cellular and biosurface engineering. Experiments may include determination of protein and peptide diffusion coefficients in alginate beads, hybridoma cell culture and antibody production, determination of the strength of cell adhesion, characterization of cell adhesion or protein adsorption by total internal reflection fluorescence, and Newtonian and non-Newtonian rheology. Laboratory exercises are supplemented by lectures on experiment design, data analysis, and interpretation. Prerequisites: Biomedical Engineering 207 or equivalent. Instructor: Truskey. One course.
molecules. Emphasis will be placed on modeling stress-strain relations in these tissues, and experimental devices used to measure stress and strain. Student seminars on topics in applied biomechanics will be included. Prerequisites: Biomedical Engineering 110L or Engineering 75L and Mathematics 108. Instructor: Myers or Setton. One course.

231. Intermediate Biomechanics (GE, BB). Introduction to solid and orthopaedic biomechanical analyses of complex tissues and structures. Topics to be covered include: spine biomechanics, elastic modeling of bone, linear and quasi-linear viscoelastic properties of soft tissue (for example, tendon and ligament), and active tissue responses (for example, muscle). Emphasis will be placed on experimental techniques used to evaluate these tissues. Student seminars on topics in applied biomechanics will be included. Prerequisites: Biomedical Engineering 110L or Engineering 75L and Mathematics 108. Instructor: Myers or Setton. One course.

233. Modern Diagnostic Imaging Systems (AC or GE). The underlying concepts and instrumentation of several modern medical imaging modalities. Review of applicable linear systems theory and relevant principles of physics. Modalities studied include X-ray radiography (conventional film-screen imaging and modern electronic imaging), computerized tomography (including the theory of reconstruction), and nuclear magnetic resonance imaging. Prerequisite: Biomedical Engineering 171 and Statistics 113 or equivalent, junior or senior standing. Consent of instructor required. Instructor: Smith or Trahey. One course. C-L: Medical Physics 230

234. Modern Microscopy (GE, IM). Overview of novel microscopy techniques that are under development in research laboratories. New techniques are placed in context with basic understanding of image formation in conventional microscopy and laboratory work which applies this knowledge. A group project offers opportunity to examine special topics of interest. Prerequisite: Biomedical Engineering 154 or graduate standing. Instructor: Wax. One course.

235. Acoustics and Hearing (GE, IM). The generation and propagation of acoustic (vibrational) waves and their reception and interpretation by the auditory system. Topics under the heading of generation and propagation include free and forced vibrations of discrete and continuous systems, resonance and damping, and the wave equation and solutions. So that students may understand the reception and interpretation of sound, the anatomy and physiology of the mammalian auditory system are presented; and the mechanics of the middle and inner ears are studied. Prerequisites: Biomedical Engineering 171 or equivalent and Mathematics 107 or 111. Instructor: Collins or Trahey. One course. C-L: Electrical and Computer Engineering 284

236L. Biophotonic Instrumentation (DR or GE, IM). Theory and laboratory practice in optics, and in the design of optical instruments for biomedical applications. Section I focuses on basic optics theory and laboratory practice. Section II focuses on deeper understanding of selected biophotonic instruments, including laboratory work. Section III comprises the design component of the course. In this part, student teams are presented with a design challenge, and work through the steps of engineering design culminating in building a prototype solution to the design challenge. Lecture topics include engineering design, intellectual property protection, engineering ethics, and safety. Prerequisites: BME 154. Instructor: Izatt or Wax. One course.

237. Biosensors (GE, IM, MC). Biosensors are defined as the use of biospecific recognition mechanisms in the detection of analytic concentration. The basic principles of protein binding with specific reference to enzyme-substrate, lectin-sugar, antibody-antigen, and receptor-transmitting binding. Simple surface diffusion and absorption physics at surfaces with particular attention paid to surface binding phenomena. Optical, electrochemical, gravimetric, and thermal transduction mechanisms which form the basis of the sensor design. Prerequisites: Biomedical Engineering 83L and 100L or their equivalent and consent of instructor. Instructor: Reichert. One course.
239. Cell Transport Mechanisms (GE, MC). Analysis of the migration of cells through aqueous media. Focus on hydrodynamic analysis of the directed self-propulsion of individual cells, use of random walk concepts to model the nondirected propulsion of individual cells, and development of kinetic theories of the migrations of populations of cells. Physical and chemical characteristics of the cells' environments that influence their motion, including rheologic properties and the presence of chemotactic, stimulatory, or inhibitory factors. Cell systems include mammalian sperm migration through the female reproductive tract, protozoa, and bacteria. Emphasis on mathematical theory. Experimental designs and results. Prerequisites: Biomedical Engineering 207 and consent of instructor. Instructor: Katz. One course.

240L. Environmental Molecular Biotechnology (GE, MC). One course. C-L: see Civil Engineering 239L

246. Computational Methods in Biomedical Engineering (GE). Introduction to practical computational methods for data analysis and simulation with a major emphasis on implementation. Methods include numerical integration and differentiation, extrapolation, interpolation, splining FFTs, convolution, ODEs, and simple one- and two-dimensional PDEs using finite differencing. Introduction to concepts for optimizing codes on a CRAY-YMP. Examples from biomechanics, electrophysiology, and imaging. Project work included and students must have good working knowledge of Unix, Fortran, or C. Intended for graduate students and seniors who plan on attending graduate school. Prerequisite: Engineering 53L or equivalent, Mathematics 107 or 111 or equivalent, or consent of instructor. Instructor: Henriquez. One course.


248. Tissue Engineering (GE, MC). This course will serve as an overview of selected topics and problems in the emerging field of tissue engineering. General topics include cell sourcing and maintenance of differentiated state, culture scaffolds, cell-biomaterials interactions, bioreactor design, and surgical implantation considerations. Specific tissue types to be reviewed include cartilage, skin equivalents, blood vessels, myocardium and heart valves, and bioartificial livers. Prerequisites: Mathematics 108 or consent of instructor. Instructor: Bursac. One course.

252. Neural Signal Acquisition (GE, IM, EL). This course will be an exploration of analog and digital signal processing techniques for measuring and characterizing neural signals. the analog portion will cover electrodes, amplifiers, filters and A/D converters for recording neural electrograms and EEGs. The digital portion will cover methods of EEG processing including spike detection and spike sorting. A course pack of relevant literature will be used in lieu of a textbook. Students will be required to write signal-processing algorithms. Prerequisite: Biomedical Engineering 154L. Instructor: Wolf. One course.

253. Computational Neuroengineering (GE, EL). This course introduces students to the fundamentals of computational modeling of neurons and neuronal circuits and the decoding of information from populations of spike trains. Topics include: integrate and fire neurons, Spike Response Models, Homogeneous and Inhomogeneous Poisson processes, neural circuits, Weiner (optimal), Adaptive Filters, neural networks for classification, population vector coding and decoding. Programming assignments and projects will be carried out using MATLAB. Prerequisites: BME 101/201 or equivalent. Instructor: Henriquez. One course.
254. Fundamentals of Electrical Stimulation of the Nervous System (GE, EL). This course presents a quantitative approach to the fundamental principles, mechanisms, and techniques of electrical stimulation required for non-damaging and effective application of electrical stimulation. Consent of instructor required. Instructor: Staff. One course.

258L. Genome Science & Technology Lab (GE, MC). Hands-on experience on using and developing advanced technology platforms for genomics and proteomics research. Experiments may include nucleic acid amplification and quantification, lab-on-chip, bimolecular separation and detection, DNA sequencing, SNP genotyping, microarrays, and synthetic biology techniques. Laboratory exercises and designing projects are combined with lectures and literature reviews. Prior knowledge in molecular biology and biochemistry is required. Instructor consent required. Instructor: Tian. Variable credit. C-L: Computational Biology and Bioinformatics 222, Genome Sciences and Policy

260. Devices for People with Disabilities (DR or GE, IM, BB). Design of custom devices to aid disabled individuals. Students will be paired with health care professionals at local hospitals who will supervise the development of projects for specific clients. Formal engineering design principles will be emphasized; overview of assistive technologies, patent issues, engineering ethics. Oral and written reports will be required. Selected projects may be continued as independent study. Prerequisite: Biomedical Engineering 154L or equivalent, or consent of instructor. Instructor: Bohs or Goldberg. One course.

261. Electronic Designs for the Developing World (DR or GE, IM). Design of custom devices to help the specific and unique needs of developing world hospitals. Formal engineering design principles will be emphasized; overview of developing world conditions, patent issues, engineering ethics. Designs must be based on microcontroller or equivalent electronic circuitry. Oral and written reports will be required. Students may elect to personally deliver their projects to a developing world hospital, if selected, in the summer following the course. Prerequisites: Biomedical Engineering 154L or equivalent, or consent of instructor. Instructor: Malkin. One course. C-L: Global Health, Global Health

262. Design for the Developing World (DR or GR). Design of custom devices to help the specific and unique needs of developing world hospitals. Formal engineering design principles will be emphasized; overview of developing world conditions, patent issues, engineering ethics. Oral and written reports will be required. Students may elect to personally deliver their projects to a developing world hospital, if selected, in the summer following the course. Prerequisite: Biomedical Engineering 154L or equivalent, or consent of instructor. Instructor: Malkin. One course. C-L: Global Health

264L. Medical Instrument Design (DR or GE, IM). General principles of signal acquisition, amplification processing, recording, and display in medical instruments. System design, construction, and evaluation techniques will be emphasized. Methods of real-time signal processing will be reviewed and implemented in the laboratory. Each student will design, construct, and demonstrate a functional medical instrument and collect and analyze data with that instrument. Formal write-ups and presentations of each project will be required. Prerequisite: Biomedical Engineering 154L or equivalent or senior standing. Instructor: Malkin, S. Smith, Trahey, or Wolf. One course.

265. Advanced Topics in Biomedical Engineering. Advanced subjects related to programs within biomedical engineering tailored to fit the requirements of a small group. Consent of instructor required. Instructor: Staff. One course.

265L. Advanced Topics with Lab. To be used as a "generic" course number for any advanced topics course with lab sections. Instructor: Staff. One course.

THE MAJOR

The major requirements are included in the minimum total of thirty-four courses listed under general requirements and departmental requirements. The following specific courses or their approved alternatives must be included: Engineering 75L, Mechanical Engineering 83L, Electrical and Computer Engineering 54L, Biomedical Engineering 100, 153, 154,
Civil and Environmental Engineering (CE)

Professor Virgin, Chair; Adjunct Assistant Professor Schaad, Assistant Chair; Professor Medina, Director of Undergraduate Studies; Professors Albertson, Avissar, Barros, Haff, Laursen, Katul, Malin, Hueckel, Petro, Trangenstein and Wiesner; Associate Professors Boadu, Dolbow, Gavin, Kabala, Kasibhatla, Peirce, and Porporato; Associate Professor of the Practice Nadeau; Assistant Professors Khlystov, Hsu-Kim, Gunsch, and Scruggs; Professors Emeriti Brown and Wilson; Adjunct Associate Professor Vallero; Lecturer Brasier

A major in civil engineering is available in this department. The civil engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.*

The infrastructure that makes up what we refer to as civilization is, for the most part, the work of civil and environmental engineers. Improving, or even maintaining, the quality of life is ever more challenging as urban problems in the industrialized nations of the world intensify, while rapid urbanization in many developing countries creates other opportunities and obligations for the civil and environmental engineer. The planning, design, construction, and maintenance of necessary facilities, in an era of increasingly scarce monetary and other resources, demand civil and environmental engineers dedicated to work for the public good and prepared to seek more efficient and effective solutions based on current technology. The challenges faced by civil and environmental engineers vary widely in nature, size, and scope, and encompass both the public and private sectors. Examples include: high-rise buildings and long-span bridges; concert halls and museums; hazardous waste disposal facilities; orbital structures; water supply and treatment facilities; tunnels; dams; seaports, airports, and offshore structures.

The mission of the undergraduate program in the Department of Civil and Environmental Engineering at Duke University is to provide an education that prepares graduates to solve technical problems, to pursue life-long learning in their field, to assume leadership roles in their chosen careers, and to recognize their professional and personal obligations to the broader society and culture. The program is designed to provide a holistic educational experience where engineering sciences and design are combined with humanities and social sciences to provide the foundation for the critical thinking and skills that allow graduates to enjoy the benefits of a liberal education.

The goals of the program are to help graduates develop:

- a solid understanding of the engineering sciences and the process of engineering design;
- the ability to think critically;
- the ability to communicate orally, in writing, and mathematically;
- the ability to analyze and understand the social, economic, ethical and environmental implications of their engineering work;
- the ability to work individually, as well as in teams, and manage the work of others; and
- a commitment to life-long learning and professional development.

Students may pursue a degree program in civil engineering coupled with a double major in another department at Duke. Examples of recently completed double majors reflect the breadth of interests shared by civil and environmental engineering students at

* Engineering and Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) 111 Market Place, Suite 1050, Baltimore, MD 21202, telephone (410)347-7700
Duke; public policy studies, economics, French, mathematics, and music. A certificate program in architectural engineering is also available.

The civil and environmental engineering program is built upon the expertise and experience of the faculty and is supported by commensurate laboratory and instructional facilities. The civil and environmental engineering professors are committed to providing quality classroom instruction, advising, and laboratory experiences in settings that encourage student-faculty as well as student-student interactions. The faculty conducts research of national and international consequence, and undergraduates have ample opportunities to be involved in such research, through undertaking independent study projects and/or by working as research assistants. The research facilities in the department, including laboratory equipment and instrumentation as well as computer resources, are comparable to those found in other major universities.

Graduates of the Department of Civil and Environmental Engineering are able to select from a wide range of career paths. Recent graduates have pursued advanced study in engineering, business, law, and architecture, while others have accepted positions with major corporations and federal, state, and local government agencies as design engineers and project managers.

24L. Introduction to Environmental Engineering and Science. One course.
100. Practical Methods in Civil Engineering. Introduction to the practical methods used by Civil Engineers, including surveying, computer-aided-design, geographical information systems, and use of the mills, lathes, and other machine tools. Instructor: Schaad. Half course.
116. Transportation Engineering. The role and history of transportation. Introduction to the planning and design of multimodal transportation systems. Principles of traffic engineering, route location, and geometric design. Planning studies and economic evaluation. Prerequisite: Statistics 113 and consent of instructor for nonengineering students. Instructor: Staff. One course.
120L. Chemical Principles in Environmental Engineering. Fundamentals of chemistry as applied in environmental engineering processes. Chemistry topics include acid-base equilibrium, the carbonate system, mineral surfaces interactions, redox reactions, and organic chemistry. Applied environmental systems include water treatment, soil remediation, air pollution and green engineering. Laboratory included. Field trips will be arranged. Prerequisite: Chemistry 11L or 21L or consent of instructor. Instructor: Staff. One course.
122L. Fluid Mechanics. Physical properties of fluids; fluid-flow concepts and basic equations; continuity, energy, and momentum principles; dimensional analysis and dynamic similitude; viscous effects; applications emphasizing real fluids. Selected laboratory work. Corequisite: Engineering 123L. Instructor: Boadu, Kabala, Laursen, or Medina. One course.
123L. Water Resources Engineering. Descriptive and quantitative hydrology, hydraulics of pressure conduits and measurement of flow, compound pipe systems, analysis of flow in pressure distribution systems, open channel flow, reservoirs and distribution system storage. Groundwater hydrology and well-hydraulics. Probability and statistics in water resources. Selected laboratory and field exercises, computer applications. Prerequisite: Civil Engineering 122L. Instructor: Kabala or Medina. One course.
124L. Biological Principles in Environmental Engineering. Fundamentals of microbiology related to biological environmental engineering processes. Topics include microbial metabolism, molecular biological tools, mass balance, and reactor models. Applications to include unit processes in wastewater treatment, bioremediation and biofiltration. Laboratory included. Field trips to be arranged. Prerequisite: Civil Engineering 122L. Instructor: Staff. One course.
130L. Structural Design and Optimization. Principles of design as an iterative process involving problem statements, incomplete information, conservative assumptions, external...

131L. Matrix Structural Analysis. Development of stiffness matrix methods from first principles. Superposition of loads and elements. Linear analysis by hand and computer of plane and space structures comprising one-dimensional truss and beam elements. Prerequisites: Engineering 75L and Mathematics 103 or Mathematics 107. Instructors: Gavin, Laursen, or Virgin. One course.

133L. Concrete and Composite Structures. Properties and design of concrete. Analysis and design of selected reinforced concrete structural elements according to strength design methodology. Mechanics forming the foundation of the methodology is featured. Laboratory work on properties of aggregates, concrete, and reinforced concrete. Prerequisite: Engineering 75L. Instructor: Nadeau. One course.


141. Special Topics in Civil Engineering. Study arranged on a special topic in which the instructor has particular interest and competence. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.

142. Special Topics in Civil Engineering. Study arranged on a special topic in which the instructor has particular interest and competence. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.


162. Architectural Engineering II. Design and integration of building subsystems (enclosure, space, structural, environmental-control) in the design of a medium-sized building. Prerequisite: Civil Engineering 161 or consent of instructor. Instructor: Brasier. One course.

172. Engineering Undergraduate Fellows Projects. Intensive research project in Civil and Environmental Engineering by students selected as Engineering Undergraduate Fellows. Course credit is contingent upon satisfactory completion of 173 and 174. Consent of instructor and program director required. Instructor: Staff. One course.


175. Analytical and Computational Solid Mechanics. Investigation and application of intermediate concepts of mechanics, expanding upon elementary ideas covered in Engineering 75L. Topics include: generalized stress and strain relations and differential equations of equilibrium in solids; the theory of elasticity, including some fundamental solutions; failure and strength theories from mechanics; and plate bending. Introduction of the finite element method as a means of solution of plate and planar elasticity problems, including basic theoretical concepts and modeling techniques involved in applications. Assigned work will feature analytical work and application of commercial finite element packages. Prerequisites: Engineering 75L, Math 103 and 107 or consent of instructor. Instructor: Laursen or Dolbow. One course. C-L: Mechanical Engineering and Materials Science 175

192. Integrated Structural Design. Student design teams complete a preliminary design of an actual structural engineering project and present the design to a panel of civil engineering faculty and practitioners. A written technical report is required. Topics to be addressed include: the design process; cost estimation; legal, ethical, and social aspects of professional engineering practice; short-term and long-term design serviceability considerations. Open only to civil engineering students during their final two semesters. Prerequisites: Civil Engineering 131L, 133L, 134L. Instructor: Staff. One course.

193. Integrated Environmental Design. Student design teams complete a preliminary design of an actual environmental engineering project and present the design to a panel of civil engineering faculty and practitioners. A written technical report is required. Topics to be addressed include: the design process; cost estimation; legal, ethical, and social aspects of professional engineering practice; short-term and long-term design serviceability considerations. Open only to civil engineering students during their final two semesters. Prerequisites: Civil Engineering 120L, 123L, 124L. Instructor: Staff. One course. C-L: Global Health

197. Projects in Civil Engineering. These courses may be taken by junior and senior engineering students who have demonstrated aptitude for independent work. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.

198. Projects in Civil Engineering. These courses may be taken by junior and senior engineering students who have demonstrated aptitude for independent work. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.


202. Applied Mathematics for Engineers. Advanced analytical methods of applied mathematics useful in solving a wide spectrum of engineering problems. Applications of linear algebra, calculus of variations, the Frobenius method, ordinary differential equations,
partial differential equations, and boundary value problems. Prerequisites: Math 108 or equivalent and undergraduate courses in solid and/or fluid mechanics. Instructor: Kabala. One course.


205. Mechanics of Composite Materials. Theory and application of effective medium, or homogenization, theories to predict macroscopic properties of composite materials based on microstructural characterizations. Effective elasticity, thermal expansion, moisture swelling, and transport properties, among others, are presented along with associated bounds such as Voigt/Reuss and Hashin-Shtrikman. Specific theories include Eshelby, Mori-Tanaka, Kuster-Toksoz, self-consistent, generalized self-consistent, differential method, and composite sphere and cylinder assemblages. Tensor-to-matrix mappings, orientational averaging, and texture analysis. Composite laminated plates, environmentally induced stresses, and failure theories. Prerequisite: Civil Engineering 201 or consent of instructor. Instructor: Nadeau. One course.

206. Elasticity. One course. C-L: see Biomedical Engineering 206

207. Transport Phenomena in Biological Systems. One course. C-L: see Biomedical Engineering 207; also C-L: Mechanical Engineering and Materials Science 207


210. Intermediate Dynamics: Dynamics of Very High Dimensional Systems. One course. C-L: see Mechanical Engineering and Materials Science 210

211. Energy Flow and Wave Propagation in Elastic Solids. Derivation of equations for wave motion in simple structural shapes: strings, longitudinal rods, beams and membranes, plates and shells. Solution techniques, analysis of systems behavior. Topics covered include: nondispersive and dispersive waves, multiple wave types (dilational, distortion), group velocity, impedance concepts including driving point impedances and moment impedances. Power and energy for different cases of wave propagation. Prerequisites: Engineering 123L and Mathematics 108 or consent of instructor. Instructor: Franzoni. One course. C-L: Mechanical Engineering and Materials Science 234


225. Dynamic Engineering Hydrology. Dynamics of the occurrence, circulation, and distribution of water; climate, hydrometeorology, geophysical fluid motions. Precipitation,
surface runoff and stream flow, infiltration, water losses. Hydrograph analysis, catchment characteristics, hydrologic instrumentation, and computer simulation models. Prerequisite: Civil Engineering 122L or consent of instructor. Instructor: Medina. One course.


229. Introduction to Atmospheric Aerosol. Atmospheric aerosol and its relationship to problems in air control, atmospheric science, environmental engineering, and industrial hygiene. Open to advanced undergraduate and graduate students. Prerequisites: knowledge of calculus and college-level physics. Consent of instructor required. Instructor: Khlystov. One course.

230L. Aerosol Measurement Techniques for Air Quality Monitoring and Research. Principles of measurements and analysis of ambient particulate matter (aerosol). Traditional and emerging measurements techniques currently used in air quality monitoring and homeland defense. Open to advanced undergraduate and graduate students interested in the science and engineering related to atmospheric aerosol. Consent of the instructor required. Instructor: Khlystov. One course.


238. Environmental Geomechanics. The course addresses engineered and natural situations, where mechanical and hydraulic properties of soils and rocks depend on environmental (thermal chemical, biological) processes. Experimental findings are reviewed, and modeling of coupled thermo-mechanical, chemo-mechanical technologies are reviewed. Instructor: Hueckel. One course.

239L. Environmental Molecular Biotechnology. Principles of genetics and recombinant DNA for environmental systems. Applications to include genetic engineering for bioremediation, DGGE, FISH, micro-arrays and biosensors. Laboratory exercises to include DNA isolation, amplification, manipulation and analysis. Prerequisites: CE 123L/BIO 25 or consent of the instructor. Instructor: Gunsch. One course. C-L: Biomedical Engineering 240L

240. Chemical Fate of Organic Compounds. One course. C-L: see Environment 240

241. Physical Chemical Processes in Environmental Engineering. Theory and design of fundamental and alternative physical and chemical treatment processes for pollution remediation. Reactor kinetics and hydraulics, gas transfer, adsorption, sedimentation, precipitation, coagulation/floculation, chemical oxidation, disinfection. Prerequisites: introductory environmental engineering, chemistry, graduate standing, or permission of instructor. Instructor: Staff. One course.

242. Environmental Aquatic Chemistry. Principles of chemical equilibria and kinetics applied to quantitative chemical description of natural and engineered aquatic systems. Topics include acid/base equilibrium, the carbonate system, metal complexation, oxidation/reduction reactions, precipitation/dissolution of minerals, and surface absorption.
Prerequisite: Civil and Environmental Engineering 120L or Environment 160 or equivalent. Instructor: Hsu-Kim. One course. C-L: Environment 242

243. Physicochemical Unit Operations in Water Treatment. Fundamental bases for design of water and waste treatment systems, including transport, mixing, sedimentation and filtration, gas transfer, coagulation, and absorption processes. Emphasis on physical and chemical treatment combinations for drinking water supply. Prerequisite: Civil Engineering 124L. Instructor: Kabala. One course.

244. Biological Processes in Environmental Engineering. Biological processes as they relate to environmental systems, including wastewater treatment and bioremediation. Concepts of microbiology, chemical engineering, stoichiometry, and kinetics of complex microbial metabolism, and process analyses. Specific processes discussed include carbon oxidation, nitrification/denitrification, phosphorus removal, methane production, and fermentation. Consent of instructor required. Instructor: Schuler. One course.

245. Pollutant Transport Systems. Distribution of pollutants in natural waters and the atmosphere; diffusive and advective transport phenomena within the natural environment and through artificial conduits and storage/treatment systems. Analytical and numerical prediction methods. Prerequisites: Civil Engineering 122L and Mathematics 111 or equivalents. Instructor: Medina. One course.

246. Water Supply Engineering Design. The study of water resources and municipal water requirements including reservoirs, transmission, treatment and distribution systems; methods of collection, treatment, and disposal of municipal and industrial wastewaters. The course includes the preparation of a comprehensive engineering report encompassing all aspects of municipal water and wastewater systems. Field trips to be arranged. Prerequisite: Civil Engineering 124L or consent of instructor. Instructor: Staff. One course.


248. Solid Waste Engineering. Engineering design of material and energy recovery systems including traditional and advanced technologies. Sanitary landfills and incineration of solid wastes. Application of systems analysis to collection of municipal refuse. Major design project in solid waste management. Prerequisite: Civil Engineering 124L or consent of instructor. Instructor: Staff. One course. C-L: Environment 248


250. Environmental Microbiology. Fundamentals of microbiology and biochemistry as they apply to environmental engineering. General topics include cell chemistry, microbial metabolism, bioenergetics, microbial ecology and pollutant biodegradation. Prerequisites: CE124L or graduate standing or consent of the instructor. Instructor: Gunsch. One course.

251. Engineering Analysis and Computational Mechanics. Mathematical formulation and numerical analysis of engineering systems with emphasis on applied mechanics. Equilibrium and eigenvalue problems of discrete and distributed systems; properties of these problems and discretization of distributed systems in continua by the trial functions with undetermined parameters. The use of weighted residual methods, finite elements, and finite differences. Prerequisite: senior or graduate standing. Instructor: Dolbow and Laursen. One course.

252. Buckling of Engineering Structures. An introduction to the underlying concepts of elastic stability and buckling, development of differential equation and energy approaches, buckling of common engineering components including link models, struts, frames, plates,
and shells. Consideration will also be given to inelastic behavior, postbuckling, and design implications. Prerequisite: Civil Engineering 131L or consent of instructor. Instructor: Virgin. One course. C-L: Mechanical Engineering and Materials Science 252

254. Introduction to the Finite Element Method. Investigation of the finite element method as a numerical technique for solving linear ordinary and partial differential equations, using rod and beam theory, heat conduction, elastostatics and dynamics, and advective/diffusive transport as sample systems. Emphasis placed on formulation and programming of finite element models, along with critical evaluation of results. Topics include: Galerkin and weighted residual approaches, virtual work principles, discretization, element design and evaluation, mixed formulations, and transient analysis. Prerequisites: a working knowledge of ordinary and partial differential equations, numerical methods, and programming in FORTRAN. Instructor: Dolbow and Laursen. One course.

255. Nonlinear Finite Element Analysis. Formulation and solution of nonlinear initial/boundary value problems using the finite element method. Systems include nonlinear heat conduction/diffusion, geometrically nonlinear solid and structural mechanics applications, and materially nonlinear systems (for example, elastoplasticity). Emphasis on development of variational principles for nonlinear problems, finite element discretization, and equation-solving strategies for discrete nonlinear equation systems. Topics include: Newton-Raphson techniques, quasi-Newton iteration schemes, solution of nonlinear transient problems, and treatment of constraints in a nonlinear framework. An independent project, proposed by the student, is required. Prerequisite: Civil Engineering 254 or consent of instructor. Instructor: Laursen. One course.

256. Computational Methods for Evolving Discontinuities. Presents an overview of advanced nomenclature methods for the treatment of engineering problems such as brittle and ductile failure and solid-liquid phase transformations in pure substances. Analytical methods for arbitrary discontinuities and interfaces are reviewed, with particular attention to the derivation of jump conditions. Partition of unity and level set methods. Prerequisites: CE 254, CE 255, or instructor consent. Instructor: Dolbow. One course.

260. Vadose Zone Hydrology. Transport of fluids, heat, and contaminants through unsaturated porous media. Understanding the physical laws and mathematical modeling of relevant processes. Field and laboratory measurements of moisture content and matric potential. Prerequisites: Civil Engineering 122L and Mathematics 111, or consent of instructor. Instructor: Kabala. One course.

262. Analytical Models of Subsurface Hydrology. Reviews the method of separation of variables, surveys integral transforms, and illustrates their application to solving initial boundary value problems. Three parts include: mathematical and hydrologic fundamentals, integral transforms and their philosophy, and detailed derivation via integral transforms of some of the most commonly used models in subsurface hydrology and environmental engineering. Discussion and use of parameter estimation techniques associated with the considered models. Prerequisites: Mathematics 108 and 111 and either Civil Engineering 122L or 123L, or consent of instructor. Instructor: Kabala. One course.

263. Multivariable Control. One course. C-L: Electrical and Computer Engineering 263, Mechanical Engineering and Materials Science 263

264. Physico-Bio-Chemical Transformations. Surveys of a selection of topics related to the interaction between fluid flow (through channels or the porous media) and physical, chemical, and biochemical transformations encountered in environmental engineering. Numerous diverse phenomena, including solute transport in the vicinity of chemically reacting surfaces, reverse osmosis, sedimentation, centrifugation, ultrafiltration, rheology, microorganism population dynamics, and others will be presented in a unifying mathematical framework. Prerequisites: Civil Engineering 122L and Mathematics 111, or consent of instructor. Instructor: Kabala. One course.
265. **Advanced Topics in Civil and Environmental Engineering.** Opportunity for study of advanced subjects relating to programs within the civil and environmental engineering department tailored to fit the requirements of individuals or small groups. Instructor: Staff. Variable credit.

269. **Fundamentals and Applications of UV Processes in Environmental Systems.** Ultraviolet light based processes as they relate to treatment of contaminants in water and air. Concepts in photochemistry and photobiology, fluence determination, UV disinfection, photodegradation processes for chemical containments, advanced oxidation processes, mathematical modeling and design of UV systems. Includes laboratory exercises. Prerequisites: CE 241 or consent or instructor. Instructor: Staff. One course.

270. **Environmental and Engineering Geophysics.** Use of geophysical methods for solving engineering and environmental problems. Theoretical frameworks, techniques, and relevant case histories as applied to engineering and environmental problems (including groundwater evaluation and protection, siting of landfills, chemical waste disposals, roads assessments, foundations investigations for structures, liquefaction and earthquake risk assessment). Introduction to theory of elasticity and wave propagation in elastic and poroelastic media, electrical and electromagnetic methods, and ground penetrating radar technology. Prerequisite: Mathematics 111 or Physics 52L or consent of instructor. Instructor: Boadu. One course.


272. **Wave Propagation in Elastic and Poroelastic Media.** Basic theory, methods of solution, and applications involving wave propagation in elastic and poroelastic media. Analytical and numerical solution of corresponding equations of motion. Linear elasticity and viscoelasticity as applied to porous media. Effective medium, soil/rock materials as composite materials. Gassmann's equations and Biot's theory for poroelastic media. Stiffness and damping characteristics of poroelastic materials. Review of engineering applications that include NDT, geotechnical and geophysical case histories. Prerequisite: Mathematics 108 or 111 or consent of instructor. Instructor: Boadu. One course.

273. **Introduction to the Physical Principles of Remote Sensing of the Environment.** The course provides an overview of the radiative transfer principles used in remote-sensing across the electromagnetic spectrum using both passive and active sensors. Special focus is placed on the process that leads from theory to the development of retrieval algorithms for satellite-based sensors, including post-processing of raw observations and uncertainty analysis. Students carry on three hands-on projects (Visible and Thermal Infrared, Active Microwave, and Passive Microwave). Background in at least one of the following disciplines is desirable: radiation transfer, signal processing, and environmental physics (Hydrology, Geology, Geophysics, Plant Biophysics, Soil Physics). Instructor consent required. Instructor: Staff. One course.

279. **Introduction to Atmospheric Chemistry.** NS One course. C-L: see Environment 279

281. **Experimental Systems.** Formulation of experiments; Pi theorem and principles of similitude; data acquisition systems; static and dynamic measurement of displacement, force, and strain; interfacing experiments with digital computers for data storage, analysis, and plotting. Students select, design, perform, and interpret laboratory-scale experiments involving structures and basic material behavior. Prerequisite: senior or graduate standing in engineering or the physical sciences. Instructor: Gavin. One course.

Civil and Environmental Engineering (CE) 601
283. Structural Dynamics. Formulation of dynamic models for discrete and continuous structures; normal mode analysis, deterministic and stochastic responses to shocks and environmental loading (earthquakes, winds, and waves); introduction to nonlinear dynamic systems, analysis and stability of structural components (beams and cables and large systems such as offshore towers, moored ships, and floating platforms). Instructor: Gavin. One course.

292. Structural Engineering Project Management. Apply project management tools and skills to a structural engineering design project. Implement changes in schedule, budget, and changing client and/or regulatory climate. Work with a design team of undergraduate students. Prerequisites: not open to students who have had CE 192, CE 193, or CE 293. Consent of instructor required. Instructor: Nadeau. One course.

293. Environmental Engineering Project Management. Apply project management tools and skills to an environmental engineering design project. Implement changes in schedule, budget, and changing client and/or regulatory climate. Work with a design team of undergraduate students. Consent of instructor required. Prerequisites: not open to students who have had CE 192, CE 193, CE 292. Instructor: Schaad. One course.

THE MAJOR

The major requirements are included in the minimum of thirty-four courses listed under general requirements and departmental requirements. The following specific courses must be included. All majors must take Engineering 24L, 25L, 53L, 75L, 115, 123L, and 150L: Civil and Environmental Engineering 122L, 130L, and 139L. Majors choosing the structural engineering and mechanics sequence must take Civil and Environmental engineering 131L, 133L, 134L and 192. Majors choosing the environmental engineering and water resources sequence must take Civil and Environmental Engineering 120L, 123L, 124L and 193.

Electrical and Computer Engineering (ECE)

Professor Collins, Chair; Associate Professor Board, Associate Chair; Professor of the Practice Ybarra, Director of Undergraduate Studies; Professors Brady, Brown, Carin, Chakrabarty, Fair, Glass, Joines, Jokerst, Krolik, Liu, Massoud, Nolte, Smith, and Trivedi; Associate Professors Brooke, Cummer, Kedem, and Teitsworth; Assistant Professors Dwyer, George, Kim, Ozev, Reynolds, Roy Choudhury, Sorin, Stiff-Roberts, Willet, and Yoshie; Professors Emeriti Casey, Owen, Marinos, McCumber, Wang, and Wilson; Associate Professor of the Practice Huettel; Assistant Professor of the Practice Gustafson; Assistant Research Professors Morizio, Pitsianis, Remus, Tantum, and Wolter; Adjunct Professor Guenther; Adjunct Associate Professors Derby and Janet; Visiting Professor Kaiser

The mission of the Department of Electrical and Computer Engineering is to facilitate the development of well rounded, educated, productive, and ethical individuals who are well versed in technical as well as social, political, and environmental issues pertinent to electrical and computer engineering. Our goal is to provide students with a rich diversity of necessary skills, opportunities to explore their varied interests, and avenues to launch successfully into a variety of careers, each involving a lifelong process of learning, service, and leadership within the graduate’s own local, national and global communities.

The Department of Electrical and Computer Engineering offers a very flexible major in Electrical and Computer Engineering (ECE). This program is fully accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET)*. The ECE major leads to a Bachelors of Science in Engineering (BSE) degree, and provides a core curriculum in mathematics, science, computer science, and

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humanities and social sciences, and a set of fundamental electrical and computer engineering courses dealing with the acquisition, processing, control, transmission, and application of information and energy by what are fundamentally electrical or electromagnetic means. These concepts are developed within the context of the curricular theme of Integrated Sensing and Information Processing (ISIP), which provides a unifying framework for the curriculum and facilitates the integration of theory, practical applications, and cutting-edge research. Extensive laboratory and design experiences throughout the curriculum promote the development and application of technical, communication, and project management skills.

The following educational objectives are fundamental to our ECE program:

- Provide a solid foundation in mathematics, physical sciences, and computer programming.
- Develop recognition of the need for future professional growth in fact-based reasoning and analysis, adaptation to new technologies, and life-long learning in an increasingly technology-dependent society.
- Build a broad engineering core competence to enable our students to communicate and interact effectively with engineers in different areas of specialization, to assess the reasonableness of new ideas and the value of new technology, and to make technology decisions with confidence.
- Develop in-depth knowledge and experience in two to three ECE topic areas to prepare graduates for their first job or for entry into a graduate engineering program or a professional school.
- Provide challenging team-based design experiences that build upon knowledge and skills from prior coursework and which incorporates engineering standards and realistic constraints.
- Develop an active curiosity about the world ensuring a breadth of learning in the humanities and social sciences so that they will be informed citizens sensitive to the impact of business and technical decisions, including their own, on contemporary social, political, ethical and environmental issues.
- Develop an optimistic self confidence, a high degree of personal integrity, and the belief that every student can each make a difference.

These broadly scoped Educational Objectives exploit the natural advantage of an engineering school embedded in a strong liberal-arts university. The flexibility of the ECE program enables students to explore technical areas more deeply and experience challenges of research at the frontiers of knowledge by taking additional advanced courses and/or by independent study with faculty experts.

For students expecting to enter the engineering profession after graduation, the ECE program prepares a student for professional work in the selected areas of concentration but yet has sufficient breadth that a significant fraction of graduates are able immediately upon graduation or within a few years thereafter to become gainfully employed outside of engineering or in an engineering field different from that of their undergraduate major. For students expecting to enter fields such as medicine, law, business management, or to an appointment in the armed forces, the program reinforces the broad relevance of the powerful problem-solving methodologies of engineering and illuminates enabling technologies for breathtaking applications of technology.

The Electrical and Computer Engineering (ECE) program at Duke is sufficiently flexible to permit motivated students to complete the requirements for a second major. The most popular second majors are in computer science and in biomedical engineering. Other second majors include mathematics, economics, physics, and public policy studies. Interests such as premedicine, prelaw, art, music, psychology, and social sciences can be accommodated through individually designed programs.
Students are encouraged to take more than the minimum required courses in the sciences and the liberal arts, as is fitting at an engineering school in a university with a strong liberal-arts tradition. In addition, juniors and seniors can, with proper planning, participate in international programs such as a semester of study abroad or the International Honors Program.

27L. Fundamentals of Electrical and Computer Engineering. How to use electrical devices and systems to interface with the physical world, transfer/transmit energy/information, extract/analyze/interpret information, and organize and store information. Topics include techniques for analyzing linear circuits, nodal and mesh analysis, energy storage, semiconductor and photonic devices, frequency representation, filtering, sampling, communications protocols, combinational and sequential logic, design concepts, and project management. In the laboratory, a robotic platform is used to design and implement solutions to realistic challenges. Prerequisites: Engineering 53L. Corequisites: Math 32. Instructor: Gustafson, Huettel, Kim, or Ybarra. One course.

51L. Introduction to Microelectronic Devices and Circuits. Hands-on, laboratory driven introduction to microelectronic devices, sensors, and integrated circuits. Student teams of 3-4 students/team compete in a design, assembly, testing, characterization and simulation of an electronic system. Projects include microelectronic devices, sensors, and basic analog and digital circuits. Classroom portion designed to answer questions generated in laboratory about understanding operation of devices and sensors, and the performance of electronic circuits. Student evaluation based on project specification, prototyping, integration, testing, simulation and documentation. Prerequisites: Engineering 53L, and either Electrical and Computer Engineering 27L or Biomedical Engineering 153L. Instructor: Brooke or Massoud. One course.

52L. Introduction to Digital Systems. Techniques for the analysis and design of combinational and sequential networks via manual and automated methods. Introduction to hardware description languages. Introduction to simple computer systems, including their lower-level architecture, assembly language programming, and computer arithmetic. Lab stresses simulation of target circuits and physical realization with both discrete and high-complexity programmable components. Final design project. Prerequisite: Engineering 53L, and either Electrical and Computer Engineering 27L or Biomedical Engineering 153L. Instructor: Board, Dwyer, or Sorin. One course.

53L. Introduction to Electromagnetic Fields. Fundamentals and application of transmission lines and electromagnetic fields and waves, antennas, field sensing, and signal transmission. Transmission line transients and digital signal transmission; transmission lines in sinusoidal steady state, impedance transformation, and impedance matching; electrostatics and magnetostatics, including capacitance and inductance; electromagnetic waves in uniform media and their interaction with interfaces; antennas and antenna arrays. Alternating laboratories and recitations. Laboratory experiments include transmission line transients, impedance matching, static and dynamic electromagnetic fields, and antennas. Prerequisites: Engineering 53L, Mathematics 107 and either Electrical and Computer Engineering 27L or Biomedical Engineering 153L. Instructor: Carin, Cummer, Joines, Liu, or Smith. One course.

54L. Introduction to Signals and Systems. Continuous and discrete signal representation and classification; system classification and response; transfer functions. Fourier series; Fourier, Laplace, and z transforms. Applications to Integrated Sensing and Information Processing; networks, modulation, sampling, filtering, and digital signal processing. Laboratory projects using digital signal processing hardware and microcontrollers. Computational solutions of problems using Matlab and Maple. Prerequisite: Engineering 53L, and either Electrical and Computer Engineering 27L or Biomedical Engineering 153L. Instructor: Collins, Gustafson, or Huettel. One course.

122. Modern Optics I. NS One course. C-L: see Physics 185; also C-L: Visual Studies 123A
123. **Photonic and Electronic Design Projects.** Photonic and electronic design problems obtained from industry are solved by teams of students. Required student response includes: formulation and written presentation of proposed problem solution, execution and evaluation of approved design solution, and written and oral presentation of final design performance, all for faculty review. Completed design must consider cost, performance, manufacturability. Students must address design solution impact on: environment, health, safety, society, and public policy as appropriate. Ethical issues as well as proper handling of intellectual property are discussed and used to guide the design process. Prerequisites: Electrical and Computer Engineering 163L and Electrical and Computer Engineering 122. Instructor: Guenther. One course.

135. **Opto-Electronic Design Projects.** Teams of students design an opto-electronic board-level system to a published specification. The system is built, tested, and compared to the design specifications. Optical, analog, digital, and radio frequency (RF) components are used to complete the projects. Group tasks include resource planning and management using GANTT charts, project budgeting, estimating product Bill of Materials costs, background study of the standard specification and component characteristics, testing of an evaluation board, interaction with component vendors, design of the team's board, submission of that design to a quick-turnaround board fabrication foundry, assembly of the purchased components onto the fabricated board, and board-level system test. The opto-electric board design incorporates considerations such as cost, economic viability, environmental impact, ethical issues, manufacturability, and social and political impact. Prerequisite: Electrical and Computer Engineering 163L and Junior or Senior standing in ECE or EE. Instructor: Brooke, Jokerst. One course.

141. **Linear Control Systems.** Analysis and design of feedback control systems. Block diagram and signal flow graph system models. Servomechanism characteristics, steady-state errors, sensitivity to parameter variations and disturbance signals. Time domain performance specifications. Stability. Root locus, Nyquist, and Bode analysis; design of compensation circuits; closed loop frequency response determination. Introduction to time domain analysis and design. Prerequisite: Electrical and Computer Engineering 54L or consent of instructor. Instructor: Gustafson. One course.

142. **Introduction to Robotics and Automation.** Fundamental notions in robotics, basic configurations of manipulator arm design, coordinate transformations, control functions, and robot programming. Applications of artificial intelligence, machine vision, force/torque, touch and other sensory subsystems. Design for automatic assembly concepts, tools, and techniques. Application of automated and robotic assembly costs, benefits, and economic justification. Selected laboratory and programming assignments. Prerequisites: Electrical and Computer Engineering 54L. Instructor: Janet. One course.


149. **Electric Vehicle Project.** The study of electrical components found in and the construction of an electric vehicle. Traction motors, controllers, and chargers, batteries, and metering. Project portion includes building of needed electrical devices and wiring of traction, control, lighting, and other components along with construction of adapters and devices necessary for the conversion of a vehicle to electric drive. Prerequisite: Physics 62L or Electrical and Computer Engineering 27L. Instructor: George. Also taught as ME 149. One course.
152. Introduction to Computer Architecture. Architecture and organization of digital computer systems. Processor operation, computer arithmetic, instruction set design. Assembly language programming. Selected hardware and software exercises culminating in the design, simulation, and implementation in FPGA technology of the major components of a complete computer system. Not open to students who have taken Computer Science 104. Prerequisite: Electrical and Computer Engineering 52L. Instructor: Board or Sorin. One course. C-L: Information Science and Information Studies

153. Introduction to Operating Systems. Basic concepts and principles of multiprogrammed operating systems. Processes, interprocess communication, CPU scheduling, mutual exclusion, deadlocks, memory management, I/O devices, file systems, protection mechanisms. Also taught as Computer Science 110. Prerequisites: Computer Science 100 and 104. Instructor: Chase or Ellis. One course.

154. Introduction to Embedded Systems. An introduction to hardware/software codesign of embedded computer systems. Structured programming techniques for high and low level programs. Hardware interfacing strategies for sensors, actuators, and displays. Detailed study of Motorola 68HC11 and 68HC12 microcomputers as applied to embedded system development. Hardware and simulation laboratory exercises with 68HC11 and 68HC12 development boards. Major design project. Prerequisite: Electrical and Computer Engineering 152 or equivalent and consent of instructor. Instructor: Board. One course.


158. Web Technologies. Introduction to the programming languages, authoring tools, and other technologies needed to design and implement effective sites on the World Wide Web. Topics include HTML, Javascript, cgi-bin, multimedia, and security. Students lead many class sessions; course project is to design or redesign a web site of interest to the Duke or Durham communities. Pass/fail grading only. Prerequisite: knowledge of at least one programming language at level of Computer Science 1. Instructor: Board. Half course. C-L: Information Science and Information Studies

159. Discrete Mathematics. Mathematics as applied to finite and infinite collections of discrete objects, including techniques for solving engineering problems involving finite and infinite sets, permutations and combinations of elements, discrete numeric functions, finite and infinite sums. Mathematical methods needed to tackle real-world problems in computer engineering, applied mathematics, computer science, and engineering. Instructor: Staff. One course.

162. Fundamentals of Microelectronic Devices. Fundamentals of semiconductor physics and modeling (semiconductor doping technology, carrier concentrations, carrier transport by drift and diffusion, temperature effects, semiconductor device models). Principles of semiconductor device analysis (current-voltage and capacitance-voltage characteristics). Static and dynamic operation of semiconductor contacts, PN junction diodes, MOS capacitors, MOS field-effect transistors (MOSFETs), and bipolar-junction transistors
(BJTs). SPICE models and parameter extraction. Prerequisite: Electrical and Computer Engineering 51L. Instructor: Massoud. One course.

**163L. Introduction to Electronics: Integrated Circuits.** Analysis and design of electronic circuits in bipolar and MOS technologies, with emphasis on both large-signal and small-signal methods. Circuits for logic gates, latches, and memories. Single-stage and multistage amplifiers and op amps. Circuits with feedback, including stability and frequency response considerations. Analog and mixed analog/digital circuit applications. Extensive use of SPICE for circuit simulation. Prerequisite: Electrical and Computer Engineering 51L. Instructor: Derby, Dwyer, or Fair. One course.

**164L. Electronic Design Projects.** Electronics/photonics project laboratory in which multidisciplinary teams of students build and test custom designed circuits or electronic/photononic systems. Students gain experience in the design/build/test/demonstrate process. Requirements include: a design plan incorporating engineering standards and realistic constraints, a timeline indicating project milestones, a written project report, and oral presentations to the class. The completed design must consider most of the following: cost, environmental impact, manufacturability, ethics, health and safety, social and political impact. Prerequisites: Electrical and Computer Engineering 163L (or Biomedical Engineering 154L with consent of instructor) and at least one of 52L, 141 or 180. Instructor: Brooke, George, Jokerst, Ybarra. One course.

**171. Applications of Electromagnetic Fields and Waves.** Solution techniques applied to static and dynamic field problems. Discussions and example applications include the following topics: waves and transmission lines, waveguides and resonators, antennas and radiation, and electromagnetic forces and energy. Prerequisite: Electrical and Computer Engineering 53L. Instructor: Carin or Joines. One course.

**176. Thermal Physics.** Thermal properties of matter treated using the basic concepts of entropy, temperature, chemical potential, partition function, and free energy. Topics include the laws of thermodynamics, ideal gases, thermal radiation and electrical noise, heat engines, Fermi-Dirac and Bose-Einstein distributions, semiconductor statistics, kinetic theory, and phase transformations. Also taught as Physics 176. Prerequisites: Mathematics 103 or equivalent and Physics 51L, 62L or equivalent. Instructor: Staff. One course.

**180. Fundamentals of Digital Signal Processing.** An introduction to theory and applications of digital signal processing. Concepts, analytical tools and design techniques to process signals in digital form. Signal sampling and reconstruction, discrete-time transforms including the z-transform, discrete-time Fourier transform, and discrete Fourier transform. Discrete systems including the analysis and design of FIR and IIR filters. Introduction to applications of digital signal processing such as image processing, and optimal detection of signals in noise. Discrete system simulations using MATLAB. Prerequisite: Electrical and Computer Engineering 54L and Statistics 113 or Mathematics 135 or Electrical and Computer Engineering 255 or permission of instructor. Instructor: Huettel or Nolte. One course.


**186. Wireless Communication Systems.** Analog and digital cellular radio. Techniques for increasing capacity including cell division, multiple access techniques (TDMA, CDMA), speech compression, and discontinuous transmission. Direct sequence and frequency hopped spread spectrum systems. Radiowave propagation models. Intelligent antenna

189. Digital Image and Multidimensional Processing. Introduction to the theory and methods of digital image and video sampling, denoising, coding, reconstruction, and analysis. Both linear methods (such as 2- and 3-D Fourier analysis) and non-linear methods (such as wavelet analysis). Key topics include segmentation, interpolation, registration, noise removal, edge enhancement, halftoning and inverse halftoning, deblurring, tomographic reconstruction, superresolution, compression, and feature extraction. While this course covers techniques used in a wide variety of contexts, it places a strong emphasis on medical imaging applications. Prerequisites: Electrical and Computer Engineering 54L and Statistics 113 or Mathematics 135 or Electrical and Computer Engineering 255 or permission of instructor. Instructor: Willett. One course. C-L: Visual Studies 113B, Information Science and Information Studies

191. Undergraduate Research in Electrical and Computer Engineering. For juniors only. Half course or one course each. Instructor: Staff. Variable credit.

192. Undergraduate Research in Electrical and Computer Engineering. For juniors only. Half course or one course each. Instructor: Staff. Variable credit.

193. Undergraduate Research in Electrical and Computer Engineering. For seniors only. Half course or one course each. Instructor: Staff. Variable credit.

194. Undergraduate Research in Electrical and Computer Engineering. For seniors only. Half course or one course each. Instructor: Staff. Variable credit.

195. Special Topics in Electrical and Computer Engineering. Study of selected topics in electrical engineering tailored to fit the requirements of a small group. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.

196. Special Topics in Electrical and Computer Engineering. Study of selected topics in electrical engineering tailored to fit the requirements of a small group. Consent of instructor and director of undergraduate studies required. Half course or one course each. Instructor: Staff. Variable credit.

197. Projects in Electrical and Computer Engineering. A course which may be undertaken only by seniors who are enrolled in the graduation with distinction program or who show special aptitude for individual project work. Elective for electrical and computer engineering majors. Consent of director of undergraduate studies required. Half course to two courses each. Instructor: Staff. Variable credit.

198. Projects in Electrical and Computer Engineering. A course which may be undertaken only by seniors who are enrolled in the graduation with distinction program or who show special aptitude for individual project work. Elective for electrical engineering majors. Consent of director of undergraduate studies required. Half course to two courses each. Instructor: Staff. Variable credit.

211. Quantum Mechanics. Discussion of wave mechanics including elementary applications, free particle dynamics, Schrödinger equation including treatment of systems with exact solutions, and approximate methods for time-dependent quantum mechanical systems with emphasis on quantum phenomena underlying solid-state electronics and physics. Prerequisite: Mathematics 107 or equivalent. Instructor: Brady, Brown, or Stiff-Roberts. One course.

214. Introduction to Solid-State Physics. Discussion of solid-state phenomena including crystalline structures, X-ray and particle diffraction in crystals, lattice dynamics, free electron theory of metals, energy bands, and superconductivity, with emphasis on understanding electrical and optical properties of solids. Prerequisite: quantum physics at
the level of Physics 143L or Electrical and Computer Engineering 211. Instructor: Teitsworth. One course.

215. Semiconductor Physics. A quantitative treatment of the physical processes that underlie semiconductor device operation. Topics include band theory and conduction phenomena; equilibrium and nonequilibrium charge carrier distributions; charge generation, injection, and recombination; drift and diffusion processes. Prerequisite: Electrical and Computer Engineering 211 or consent of instructor. Instructor: Staff. One course.


227. Quantum Information Science. Fundamental concepts and progress in quantum information science. Quantum circuits, quantum universality theorem, quantum algorithms, quantum operations and quantum error correction codes, fault-tolerant architectures, security in quantum communications, quantum key distribution, physical systems for realizing quantum logic, quantum repeaters and long-distance quantum communication. Prerequisites: ECE 211 or Physics 211 or equivalent. Instructor: Kim. One course. C-L: Physics 272
241. **Linear System Theory and Optimal Control.** Consideration of system theory fundamentals; observability, controllability, and realizability; stability analysis; linear feedback, linear quadratic regulators, Riccati equation, and trajectory tracking. Prerequisite: Electrical and Computer Engineering 141. Instructor: P. Wang. One course.

243. **Pattern Classification and Recognition Technology.** Theory and practice of recognition technology: pattern classification, pattern recognition, automatic computer decision-making algorithms. Applications covered include medical diseases, severe weather, industrial parts, biometrics, bioinformation, animal behavior patterns, image processing, and human visual systems. Perception as an integral component of intelligent systems. This course prepares students for advanced study of data fusion, data mining, knowledge base construction, problem-solving methodologies of "intelligent agents" and the design of intelligent control systems. Prerequisites: Mathematics 107, Statistics 113 or Mathematics 135, Computer Science 6, or consent of instructor. Instructor: Collins or P. Wang. One course.

245. **Digital Control Systems.** Review of traditional techniques used for the design of discrete-time control systems; introduction of "nonclassical" control problems of intelligent machines such as robots. Limitations of the assumptions required by traditional design and analysis tools used in automatic control. Consent of instructor required. Instructor: Staff. One course.

246. **Optimal Control.** Review of basic linear control theory and linear/nonlinear programming. Dynamic programming and the Hamilton-Jacobi-Bellman Equation. Calculus of variations. Hamiltonian and costate equations. Pontryagin's Minimum Principle. Solution to common constrained optimization problems. This course is designed to satisfy the need of several engineering disciplines. Prerequisite: Electrical and Computer Engineering 141 or equivalent. Instructor: Staff. One course. C-L: Mechanical Engineering and Materials Science 232

251. **Advanced Digital System Design.** This course covers the fundamentals of advanced digital system design, and the use of a hardware description language, VHDL, for their synthesis and simulation. Examples of systems considered include the arithmetic/logic unit, memory, and microcontrollers. The course includes an appropriate capstone design project that incorporates engineering standards and realistic constraints in the outcome of the design process. Additionally, the designer must consider most of the following: Cost, environmental impact, manufacturability, health and safety, ethics, social and political impact. Each design project is executed by a team of 4 or 5 students who are responsible for generating a final written project report and making an appropriate presentation of their results to the class. Prerequisite: Electrical and Computer Engineering 52L and Senior/graduate student standing. Instructor: Derby. One course.

252. **Advanced Computer Architecture I.** QS, R One course. C-L: see Computer Science 220


254. **Fault-Tolerant and Testable Computer Systems.** Faults and failure mechanisms, test generation techniques and diagnostic program development for detection and location of faults in digital networks; design for testability, redundancy techniques, self-checking and fail-safe networks, fault-tolerant computer architectures. Prerequisite: Electrical and


259. Advanced Computer Architecture II. QS One course. C-L: see Computer Science 221

261. CMOS VLSI Design Methodologies. Emphasis on full-custom chip design. Extensive use of CAD tools for IC design, simulation, and layout verification. Techniques for designing high-speed, low-power, and easily-testable circuits. Semester design project: Groups of four students design and simulate a simple custom IC using Mentor Graphics CAD tools. Teams and project scope are multidisciplinary; each team includes students with interests in several of the following areas: analog design, digital design, computer science, computer engineering, signal processing, biomedical engineering, electronics, photonics. A formal project proposal, a written project report, and a formal project presentation are also required. The chip design incorporates considerations such as cost, economic viability, environmental impact, ethical issues, manufacturability, and social and political impact. Prerequisites: Electrical and Computer Engineering 52L and Electrical and Computer Engineering 163L. Some background in computer organization is helpful but not required. Instructor: Chakrabarty. One course.

custom VLSI CAD software. Prerequisite: Electrical and Computer Engineering 162 or 163L. Instructor: Morizio. One course.


**264. CAD For Mixed-Signal Circuits.** The course focuses on various aspects of design automation for mixed-signal circuits. Circuit simulation methods including graph-based circuit representation, automated derivation and solving of nodal equations, and DC analysis, test automation approaches including test equipments, test generation, fault simulation, and built-in-self-test, and automated circuit synthesis including architecture generation, circuit synthesis, task generation, placement and routing are the major topics. The course will have one major project, 4-6 homework assignments, one midterm, and one final. Prerequisites: ECE 163L. Permission of instructor required. Instructor: Ozev. One course.

**266. Synthesis and Verification of VLSI Systems.** Algorithms and CAD tools for VLSI synthesis and design verification, logic synthesis, multi-level logic optimization, high-level synthesis, logic simulation, timing analysis, formal verification. Prerequisite: Electrical and Computer Engineering 52L or equivalent. Instructor: Chakrabarty. One course.

**267. Radiofrequency (RF) Transceiver Design.** Design of wireless radiofrequency transceivers. Analog and digital modulation, digital modulation schemes, system level design for receiver and transmitter path, wireless communication standards and determining system parameters for standard compliance, fundamentals of synthesizer design, and circuit level design of low-noise amplifiers and mixers. Prerequisites: Electrical and Computer Engineering 54L and Electrical and Computer Engineering 163L or equivalent. Instructor: Ozev. One course.

**269. VLSI System Testing.** Fault modeling, fault simulation, test generation algorithms, testability measures, design for testability, scan design, built-in self-test, system-on-a-chip testing, memory testing Prerequisite: Electrical and Computer Engineering 52L or equivalent. Instructor: Chakrabarty. One course.

**271. Electromagnetic Theory.** The classical theory of Maxwell's equations; electrostatics, magnetostatics, boundary value problems including numerical solutions, currents and their interactions, and force and energy relations. Three class sessions. Prerequisite: Electrical and Computer Engineering 53L. Instructor: Carin, Joines, Liu, or Smith. One course.


**273. Optical Communication Systems.** Mathematical methods, physical ideas, and device concepts of optoelectronics. Maxwell's equations, and definitions of energy density and power flow. Transmission and reflection of plane waves at interfaces. Optical resonators, waveguides, fibers, and detectors are also presented. Prerequisite: Electrical and Computer Engineering 53L or equivalent. Instructor: Joines. One course.

**275. Microwave Electronic Circuits.** Microwave circuit analysis and design techniques. Properties of planar transmission lines for integrated circuits. Matrix and computer-aided methods for analysis and design of circuit components. Analysis and design of input, output,
and interstage networks for microwave transistor amplifiers and oscillators. Topics on stability, noise, and signal distortion. Prerequisite: Electrical and Computer Engineering 53L or equivalent. Instructor: Joines. One course.

277. Computational Electromagnetics. Systematic discussion of useful numerical methods in computational electromagnetics including integral equation techniques and differential equation techniques, both in the frequency and time domains. Hands-on experience with numerical techniques, including the method of moments, finite element and finite-difference time-domain methods, and modern high order and spectral domain methods. Prerequisite: Electrical and Computer Engineering 271 or consent of instructor. Instructor: Carin or Liu. One course.

278. Inverse Problems in Electromagnetics and Acoustics. Systematic discussion of practical inverse problems in electromagnetics and acoustics. Hands-on experience with numerical solution of inverse problems, both linear and nonlinear in nature. Comprehensive study includes: discrete linear and nonlinear inverse methods, origin and solution of nonuniqueness, tomography, wave-equation based linear inverse methods, and nonlinear inverse scattering methods. Assignments are project oriented using MATLAB. Prerequisites: Graduate level acoustics or electromagnetics (Electrical and Computer Engineering 271), or consent of instructor. Instructor: Liu. One course.

279. Waves in Matter. Analysis of wave phenomena that occur in materials based on fundamental formulations for electromagnetic and elastic waves. Examples from these and other classes of waves are used to demonstrate general wave phenomena such as dispersion, anisotropy, and causality; phase, group, and energy propagation velocities and directions; propagation and excitation of surface waves; propagation in inhomogeneous media; and nonlinearity and instability. Applications that exploit these wave phenomena in general sensing applications are explored. Prerequisites: Electrical and Computer Engineering 53L. Instructor: Cummer. One course.


284. Acoustics and Hearing. One course. C-L: see Biomedical Engineering 235

285. Signal Detection and Extraction Theory. Introduction to signal detection and information extraction theory from a statistical decision theory viewpoint. Subject areas covered within the context of a digital environment are decision theory, detection and estimation of known and random signals in noise, estimation of parameters and adaptive recursive digital filtering, and decision processes with finite memory. Applications to problems in communication theory. Prerequisite: Electrical and Computer Engineering 281 or consent of instructor. Instructor: Nolte. One course.

286. Digital Processing of Speech Signals. Detailed treatment of the theory and application of digital speech processing. Modeling of the speech production system and speech signals; speech processing methods; digital techniques applied in speech transmission, speech
synthesis, speech recognition, and speaker verification. Acoustic-phonetics, digital speech modeling techniques, LPC analysis methods, speech coding techniques. Application case studies: synthesis, vocoders, DTW (dynamic time warping)/HMM (hidden Markov modeling) recognition methods, speaker verification/identification. Prerequisite: Electrical and Computer Engineering 182 or equivalent or consent of instructor. Instructor: Staff. One course.

288. Sensor Array Signal Processing. An in-depth treatment of the fundamental concepts, theory, and practice of sensor array processing of signals carried by propagating waves. Topics include: multidimensional frequency-domain representations of space-time signals and linear systems; apertures and sampling of space-time signals; beamforming and filtering in the space-time and frequency domains, discrete random fields; adaptive beamforming methods; high resolution spatial spectral estimation; optimal detection, estimation, and performance bounds for sensor arrays; wave propagation models used in sensor array processing; blind beamforming and source separation methods; multiple-input-multiple-output (MIMO) array processing; application examples from radar, sonar, and communications systems. Instructor: Staff. One course.


299. Advanced Topics in Electrical and Computer Engineering. Opportunity for study of advanced subjects related to programs within the electrical and computer engineering department tailored to fit the requirements of a small group. Instructor: Staff. One course.

THE MAJOR

The requirements for the Electrical Engineering (EE) and Electrical and Computer Engineering (ECE) majors are included in the minimum total of 34 courses listed under the general requirements and departmental requirements. The program of study must include an approved engineering design course taken in the junior or senior year of the program.

Mechanical Engineering and Materials Science (ME)

Professor Cocks, Chair; Associate Professor Bliss, Director of Undergraduate Studies; Professors Bejan, Cocks, Dowell, Garg, Needham, Shaughnessy, and Tan; Associate Professors Bliss, Howle, Knight, Marszalek, and Zhong; Assistant Professors Chen, Curtarolo, Ferrari, Lazarides, Mann, Protz, Yellen; Professor of the Practice Franzoni; Associate Research Professor Tang; Assistant Research Professors Simmons and Thomas; Senior Research Scientist Kielb; Adjunct Professors Goesele and Lorente; Adjunct Assistant Professor Stepp

A major in mechanical engineering is available in this department. The mechanical engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.*

Mechanical engineers are concerned with the optimum use of materials, energy, time, and individual effort to serve societal needs through the design of machines, structures, and mechanical and thermal systems, and through better understanding of dynamic processes involving these systems. They have a wide involvement in many industries including

* Engineering and Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) 111 Market Place, Suite 1050, Baltimore, MD 21202, telephone (410)347-7700
aerospace, biomechanical and biomedical engineering, construction, electronics, manufacturing, national defense, power generation, and transportation. Within these industries, the engineer might specialize in the design, analysis, automation, operation, or marketing of systems or services. The individual's contribution may lie anywhere in the spectrum from highly theoretical to imminently practical, and often involves leadership as an engineering manager or organization executive.

Because mechanical engineers in industry and research engage in such a great variety of activities, their education must be broadly based. Although individual engineers may specialize within their industry positions or in graduate study, each must have the background needed to contribute in any of several technical areas, to combine knowledge of multiple topics when necessary, and to interact with members of other disciplines and professions in accomplishing broad goals. Thus the mechanical engineer's program of study must include fundamental grounding in mathematics and basic sciences, applications in several engineering sciences, and team-based experience in the process of design, where theory is applied in the context of real needs and limitations and where judgment must be exercised. Furthermore, to be a responsible member of the engineering profession, each graduate must be aware of social, ethical, environmental and economic factors and constraints on engineering activity, and must understand the importance of these matters in a global context.

With these considerations in mind, the goals of the undergraduate mechanical engineering program are to provide:

- the knowledge, skills, and credentials needed to be successful at the entry level of the practice of engineering.
- the preparation necessary to undertake the initial steps leading to professional registration.
- an educational preparation for graduate or professional study.
- an educational background that is the basis for professional growth and leadership throughout a career that may encompass a broad range of endeavors, both technical and nontechnical.

The curriculum capitalizes on the exceptional abilities of our highly select students to cultivate the learning, thinking, and problem-solving abilities needed to adapt, to develop, and to exercise responsible leadership through times of rapid change. The program provides firm preparation in the essential engineering topics while allowing wide flexibility for students to pursue their own specialized interests.

**83L. Structure and Properties of Solids.** Introduction to materials science and engineering, emphasizing the relationships between the structure of a solid and its properties. Atomic and molecular origins of electrical, mechanical, and chemical behavior are treated in some detail for metals, alloys, polymers, ceramics, glasses, and composite materials. Prerequisites: Chemistry 21L and Engineering 75L or Biomedical Engineering 110L. Instructor: Curtarolo, Lazarides, or Zauscher. One course.


**115L. Failure Analysis and Prevention.** A study and analysis of the causes of failure in engineering materials and the diagnosis of those causes. Elimination of failures through proper material selection, treatment, and use. Case histories. Examination of fracture surfaces. Laboratory investigations of different failure mechanisms. Prerequisites: Engineering 75L and Mechanical Engineering 83L. Instructor: Cocks. One course.

**121. Energy Engineering and the Environment.** Efficiencies of both new and established energy sources and conversion methods. Evaluation of alternative energy technologies by
statistical information and by modeling using principals of fluid mechanics, thermodynamics and heat transfer. Electricity generation by fossil fuels, nuclear, solar, wind and hydro. Space heating and cooling by traditional methods and by solar. Transportation energy in automobiles, mass transit and freight. Environmental consequences of energy choices on local, national and global scales, including toxic emissions, greenhouse gases and resource depletion. Prerequisite: ME 101L Thermodynamics. Instructors: Cocks and Knight. One course.

125L. Control of Dynamic Systems. Model dynamic systems and characterize time and frequency domain response with respect to particular inputs. Characterize systems in terms of rise-time, settling-time and bandwidth. Identify the difference between stable and unstable system. Apply feedback control to modify the response of dynamic systems based upon specified design objectives. Develop methods of designing compensators for single-input, single-output, and multiple-input, multiple-output dynamic systems based upon classical and modern control approaches. Introduce optimal control theory, the linear quadratic regulator (LQR) problem, and the linear quadratic Gaussian (LQG) problem. Gain a physical understanding of what can be accomplished with feedback control in modifying the dynamics of a system. Prerequisite: Engineering 119L, Mathematics 107. Instructor: Staff. One course.

126L. Fluid Mechanics. An introductory course emphasizing the application of the principles of conservation of mass, momentum, and energy in a fluid system. Physical properties of fluids, dimensional analysis and similitude, viscous effects and integral boundary layer theory, subsonic and supersonic flows, normal shockwaves. Selected laboratory work. Prerequisites: Engineering 123L and Mechanical Engineering 101L, Co-requisite or prerequisite: Mathematics 108. Instructor: Bliss, Howle, Knight, Shaughnessy, or Zhong. One course.

131. Mechanical Engineering Analysis for Design. Calculation of 3D stresses, strains, and deflections encountered in mechanical designs. Types of problems include: curved beams, contact stresses, press/shrink fits, etc. Reliability and uncertainty analysis, failure theories, fatigue, and fracture mechanics. Computational methods of analysis, such as finite elements analysis are covered. Prerequisites: Engineering 20L, 75L, 123L, Mechanical Engineering 83L, and Math 108. Instructor: Franzoni. One course.

135. Introduction to Vibrations. Mechanical vibrations are studied primarily with emphasis on application of analytical and computational methods to machine design and vibration control problems. A single degree-of-freedom system is use to determine free vibration characteristics and response to impulse, harmonic and periodic excitations. The study of two and three degree-of-freedom systems includes the determination of the eigenvalues and eigenvectors, and introduction to modal analysis. The finite element method is used to conduct basic vibration analysis of systems with a large number of degrees of freedom. The student learns how to balance rotating machines, and how to design suspension systems, isolation systems, vibration sensors, and tuned vibration absorbers. Prerequisite: ME125L. Instructor: Kielb. One course.

141L. Mechanical Design. A study of practical aspects of mechanical design including conceptualization, specifications, and selection of mechanical elements. The design and application of mechanical components such as gears, cams, bearings, springs, and shafts. Practice in application of process through design projects. Prerequisite: Engineering 123L and Mechanical Engineering 115L. Instructor: Franzoni, Howle, or Knight. One course.

142. Introduction to Robotics and Automation. One course. C-L: see Electrical and Computer Engineering 142; also C-L: Information Science and Information Studies

149. Electric Vehicle Project. One course. C-L: see Electrical and Computer Engineering 149

150L. Heat and Mass Transfer. A rigorous development of the laws of mass and energy transport as applied to a continuum. Energy transfer by conduction, convection, and

**160L. Mechanical Systems Design.** An integrative design course addressing both creative and practical aspects of the design of systems. Development of the creative design process, including problem formulation and needs analysis, feasibility, legal, economic and human factors, aesthetics, safety, synthesis of alternatives, and design optimization. Application of design methods through several projects including a term design project. Prerequisites: Mechanical Engineering 125L, 141L, and 150L. Instructor: Staff. One course.

**165. Special Topics in Mechanical Engineering.** Study arranged on a special engineering topic in which the faculty has particular interest and competence as a result of research and professional activities. Consent of instructor and director of undergraduate studies required. Half or one course. Instructor: Staff. Variable credit.

**166. Constructal theory and design.** Flow configuration in nature and engineering emerges from the constructal law of increase of flow access in time, when the flow system is endowed with freedom to morph. The course brings together the basic principles of fluid mechanics, heat transfer and thermodynamics, and teaches how to generate (to 'discover') shape and structure for energy flow systems. The course teaches design as science, and presents a paradigm that is applicable across the board, from engineering to biology, geophysics and social dynamics. Instructor: Bejan and Lorente. One course.


**172. Engineering Undergraduate Fellows Projects.** Intensive research project in Mechanical Engineering by students selected as Engineering Undergraduate Fellows. Course credit is contingent upon satisfactory completion of 173 and 174. Consent of instructor and program director required. Instructor: Staff. One course.

**173. Engineering Undergraduate Fellows Projects.** Continuation course for Engineering Undergraduate Fellows, contingent upon satisfactory completion of 172. Consent required. Instructor: Staff. One course.

**174. Engineering Undergraduate Fellows Projects.** Final continuation course for Engineering Undergraduate Fellows, contingent upon satisfactory completion of 172 and 173. Consent required. Instructor: Staff. One course.

**175. Analytical and Computational Solid Mechanics.** One course. C-L: see Civil Engineering 175

**183. Power Generation.** Basic concepts of thermodynamics, heat transfer, and fluid flow applied to power generation processes. Nuclear reaction theory and reactor technology; fossil fuel combustion theory and modern boiler practice. Power plant ancillary equipment and processes. Design considerations and analyses include economic and environmental factors. Instructor: Staff. One course.

**187. Undergraduate Projects in Mechanical Engineering.** Individual projects arranged in consultation with a faculty member. Open to students who show special aptitude for research and design. Taught in the Fall. Consent of director of undergraduate studies. Instructor: Staff. Variable credit.

**188. Undergraduate Projects in Mechanical Engineering.** Individual projects arranged in consultation with a faculty member. Open to students who show special aptitude for research and design. Taught in the Spring. Consent of director of undergraduate studies. Instructor: Staff. Variable credit.
197. Special Projects in Mechanical Engineering. Individual projects arranged in consultation with a faculty member. Open only to seniors enrolled in the graduation with distinction program or showing special aptitude for research. Half course to two courses. To be taught in the Fall. Prerequisites: B average and consent of the director of undergraduate studies. Instructor: Staff. Variable credit.

198. Special Projects in Mechanical Engineering. Individual projects arranged in consultation with a faculty member. Open only to seniors enrolled in the graduation with distinction program or showing special aptitude for research. Half course to two courses. Prerequisites: B average and consent of the director of undergraduate studies. Instructor: Staff. Variable credit.


204. Plates and Shells. One course. C-L: see Civil Engineering 204

207. Transport Phenomena in Biological Systems. One course. C-L: see Biomedical Engineering 207; also C-L: Civil Engineering 207

209. Soft Wet Materials and Interfaces. The materials science and engineering of soft wet materials and interfaces. Emphasis on the relationships between composition, structure, properties and performance of macromolecules, self assembling colloidal systems, linear polymers and hydrogels in aqueous and nonaqueous liquid media, including the role of water as an "organizing" solvent. Applications of these materials in biotechnology, medical technology, microelectronic technology, and nature's own designs of biological materials. Instructor: Needham. One course.


211. Theoretical and Applied Polymer Science. An intermediate course in soft condensed matter physics dealing with the structure and properties of polymers and biopolymers. Introduction to polymer syntheses based on chemical reaction kinetics, polymer characterization. Emphasizes (bio)polymers on surfaces and interfaces in aqueous environments, interactions of (bio)polymer surfaces, including wetting and adhesion phenomena. Instructor: Zauscher. One course. C-L: Biomedical Engineering 208


213. Physical Metallurgy. An advanced materials science course focusing on the relationships between structure and properties in metals and alloys. Conceptual and mathematical models developed and analyzed for crystal structures, elastic and plastic deformation, phase transformations, thermodynamic behavior, and electrical and magnetic properties. Prerequisites: Mechanical Engineering 83L and 101L. Instructor: Staff. One course.

215. Biomedical Materials and Artificial Organs. One course. C-L: see Biomedical Engineering 215
216. **Mechanical Metallurgy.** An advanced materials science course dealing with the response of materials to applied forces. Mechanical fundamentals; stress-strain relationships for elastic behavior; theory of plasticity. Metallurgical fundamentals; plastic deformation, dislocation theory; strengthening mechanisms. Mechanical behavior of polymers. Applications to materials testing. Prerequisites: Engineering 75L and Mechanical Engineering 83L. Instructor: Staff. One course.


218. **Thermodynamics of Electronic Materials.** Basic thermodynamic concepts applied to solid state materials with emphasis on technologically relevant electronic materials such as silicon and GaAs. Thermodynamic functions, phase diagrams, solubilities and thermal equilibrium concentrations of point defects; nonequilibrium processes and the kinetic phenomena of diffusion, precipitation, and growth. Instructor: Tan. One course.

221. **Compressible Fluid Flow.** Basic concepts of the flow of gases from the subsonic to the hypersonic regime. One-dimensional wave motion, the acoustic equations, and waves of finite amplitude. Effects of area change, friction, heat transfer, and shock on one-dimensional flow. Moving and oblique shock waves and Prandtl-Meyer expansion. Prerequisite: ME126 or equivalent. Instructor: Shaughnessy. One course.

225. **Mechanics of Viscous Fluids.** Equations of motion for a viscous fluid, constitutive equations for momentum and energy transfer obtained from second-law considerations, general properties and exact solutions of the Navier-Stokes and Stokes (creeping-flow) equations, applications to problems of blood flow in large and small vessels. Prerequisite: ME126 or equivalent. Instructor: Shaughnessy. One course.

226. **Intermediate Fluid Mechanics.** A survey of the principal concepts and equations of fluid mechanics, fluid statics, surface tension, the Eulerian and Lagrangian description, kinematics, Reynolds transport theorem, the differential and integral equations of motion, constitutive equations for a Newtonian fluid, the Navier-Stokes equations, and boundary conditions on velocity and stress at material interfaces. Instructor: Shaughnessy. One course.


228. **Lubrication.** Derivation and application of the basic governing equations for lubrication; the Reynolds equation and energy equation for thin films. Analytical and computational solutions to the governing equations. Analysis and design of hydrostatic and hydrodynamic slider bearings and journal bearings. Introduction to the effects of fluid inertia and compressibility. Dynamic characteristics of a fluid film and effects of bearing design on dynamics of machinery. Prerequisites: Mathematics 108 and Mechanical Engineering 126L. Instructor: Knight. One course.

229. **Computational Fluid Mechanics and Heat Transfer.** An exposition of numerical techniques commonly used for the solution of partial differential equations encountered in engineering physics. Finite-difference schemes (which are well-suited for fluid mechanics problems); notions of accuracy, conservation, consistency, stability, and convergence. Recent applications of weighted residuals methods (Galerkin), finite-element methods, and grid generation techniques. Through specific examples, the student is guided to construct and assess the performance of the numerical scheme selected for the particular type of transport equation (parabolic, elliptic, or hyperbolic). Instructor: Howle. One course.

231. **Adaptive Structures: Dynamics and Control.** Integration of structural dynamics, linear systems theory, signal processing, transduction device dynamics, and control theory for modeling and design of adaptive structures. Classical and modern control approaches applied to reverberant plants. Fundamentals of adaptive feedforward control and its integration with feedback control. Presentation of a methodical design approach to adaptive systems and structures with emphasis on the physics of the system. Numerous MATLAB examples provided with course material as well as classroom and laboratory demonstrations. Instructor: Clark. One course.

232. **Optimal Control.** One course. C-L: Electrical and Computer Engineering 246

233. **Intelligent Systems.** An introductory course on learning and intelligent-systems techniques for the modeling and control of dynamical systems. Review of theoretical foundations in dynamical systems, and in static and dynamic optimization. Numerical methods and paradigms that exploit learning and optimization in order to deal with complexity, nonlinearity, and uncertainty. Investigation of theory and algorithms for neural networks, graphical models, and genetic algorithms. Interdisciplinary applications and demonstrations drawn from engineering and computer science, including but not limited to adaptive control, estimation, robot motion and sensor planning. Prerequisites: Mathematics 107 or 111. Consent of instructor required. Instructor: Ferrari. One course.

234. **Energy Flow and Wave Propagation in Elastic Solids.** Derivation of equations for wave motion in simple structural shapes: strings, longitudinal rods, beams and membranes, plates and shells. Solution techniques, analysis of systems behavior. Topics covered include: nondispersive and dispersive waves, multiple wave types (dilational, distortion), group velocity, impedance concepts including driving point impedances and moment impedances. Power and energy for different cases of wave propagation. Prerequisites: Engineering 123L and Mathematics 108 or consent of instructor. Instructor: Franzoni. One course. C-L: Civil Engineering 211

235. **Advanced Mechanical Vibrations.** Advanced mechanical vibrations are studied primarily with emphasis on application of analytical and computational methods to machine design and vibration control problems. Equations of motion are developed using Lagrange's equations. A single degree-of-freedom system is used to determine free vibration characteristics and response to impulse, harmonic periodic excitations, and random. The study of two and three degree-of-freedom systems includes the determination of the eigenvalues and eigenvectors, and an in-depth study of modal analysis methods. The finite element method is used to conduct basic vibration analysis of systems with a large number of degrees of freedom. The student learns how to balance rotating machines, and how to design suspension systems, isolation systems, vibration sensors, and tuned vibration absorbers. Instructor: Kielb. One course.

236. **Engineering Acoustics.** Fundamentals of acoustics including sound generation, propagation, reflection, absorption, and scattering. Emphasis on basic principles and analytical methods in the description of wave motion and the characterization of sound fields. Applications including topics from noise control, sound reproduction, architectural acoustics, and aerodynamic noise. Occasional classroom or laboratory demonstration. This course is open only to undergraduate seniors and graduate students. Prerequisites: Mathematics 108 or equivalent or consent of instructor. Instructor: Bliss. One course.
237. **Aerodynamics.** Fundamentals of aerodynamics applied to wings and bodies in subsonic and supersonic flow. Basic principles of fluid mechanics analytical methods for aerodynamic analysis. Two-and three-dimensional wing theory, slender-body theory, lifting surface methods, vortex and wave drag. Brief introduction to vehicle design, performance and dynamics. Special topics such as unsteady aerodynamics, vortex wake behavior, and propeller and rotor aerodynamics. This course is open only to undergraduate seniors and graduate students. Prerequisites: ME126 and Mathematics 108 or equivalent. Instructor: Bliss. One course.


239. **Unsteady Aerodynamics.** Analytical and numerical methods for computing the unsteady aerodynamic behavior of airfoils and wings. Small disturbance approximation to the full potential equation. Unsteady vortex dynamics. Kelvin impulse and apparent mass concepts applied to unsteady flows. Two-dimensional unsteady thin airfoil theory. Time domain and frequency domain analyses of unsteady flows. Three-dimensional unsteady wing theory. Introduction to unsteady aerodynamic behavior of turbomachinery. Prerequisite: Mechanical Engineering 237. Instructor: Hall. One course.


241. **Electromagnetic Processes in Fluids.** Electromagnetic processes and transport phenomena in fluids is overviewed. Topics to be discussed include: Maxwell's equations, statistical thermodynamic processes, origin of surface forces (i.e. Van der Waals), plasma in gases and electrolyte distribution, wave propagation near boundaries and in complex media, transport equations in continuum limit. Consent of instructor required. Instructor: Staff.

252. **Buckling of Engineering Structures.** One course. C-L: see Civil Engineering 252.

263. **Multivariable Control.** One course. C-L: Civil Engineering 263, Electrical and Computer Engineering 263.

265. **Advanced Topics in Mechanical Engineering.** Opportunity for study of advanced subjects related to programs within mechanical engineering tailored to fit the requirements of a small group. Approval of director of undergraduate or graduate studies required. Instructor: Staff. Variable credit.

268. **Cellular and Biosurface Engineering.** A combination of fundamental concepts in materials science, colloids, and interfaces that form a basis for characterizing: the physical properties of biopolymers, microparticles, artificial membranes, biological membranes, and cells; and the interactions of these materials at biofluid interfaces. Definition of the subject as a coherent discipline and application of its fundamental concepts to biology, medicine, and biotechnology. Prerequisite: Mechanical Engineering 208 or consent of instructor. Instructor: Needham. One course.

270. **Robot Control and Automation.** Review of kinematics and dynamics of robotic devices; mechanical considerations in design of automated systems and processes, hydraulic and pneumatic control of components and circuits; stability analysis of robots involving nonlinearities; robotic sensors and interfacing; flexible manufacturing; man-machine interaction and safety consideration. Prerequisites: Mechanical Engineering 230 or equivalent and consent of instructor. Instructor: Garg. One course.

275. **Product Safety and Design.** An advanced engineering design course that develops approaches to assessing and improving the safety of products and product systems. Safety
is presented in terms of acceptable risk and analyzed through legal case studies. Probabilistic decision making; risk economics; risk analysis and assessment. Corequisite: Mechanical Engineering 160L. Instructor: Staff. One course.

276. Designs and Decisions. Successful engineering entrepreneurship requires both the creation of new devices and processes and the ability to make rational selections among design alternatives. Design methodology is presented that fosters creativity and introduces TRIZ (the Russian acronym for Theory of Inventive Problem Solving). Decisions among design alternatives are structured and analyzed in graphical and probabilistic terms: tree diagrams; sampling theory; hypothesis testing; and confidence levels. Corequisite: Mechanical Engineering 160L or consent of instructor. Instructor: Staff. One course.


281. Fundamentals of Heat Conduction. Fourier heat conduction. Solution methods including separation of variables, transform calculus, complex variables. Green's function will be introduced to solve transient and steady-state heat conduction problems in rectangular, cylindrical, and spherical coordinates. Microscopic heat conduction mechanisms, thermophysical properties, Boltzmann transport equation. Prerequisite: Mathematics 111 or consent of instructor. Instructor: Bejan. One course.

282. Fundamentals of Thermal Radiation. Radiative properties of materials, radiation-materials interaction and radiative energy transfer. Emphasis on fundamental concepts including energy levels and electromagnetic waves as well as analytical methods for calculating radiative properties and radiation transfer in absorbing, emitting, and scattering media. Applications cover laser-material interactions in addition to traditional areas such as combustion and thermal insulation. Prerequisite: Mathematics 108 or consent of instructor. Instructor: Staff. One course.

THE MAJOR

The major requirements are included in the minimum total of thirty-four courses listed under the general requirements and departmental requirements. Specific courses which must be included are Engineering 20L, 53L, 75L, 119L, and 123L; Mechanical Engineering 83L, 101L, 125L, 126L, 131L, 141L, 150L, and 160L.

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