General Information
Although Thomas Jefferson's original plan for the University contemplated graduate instruction, the first such department in the modern sense was not instituted until 1859-60 by Professor Basil Gildersleeve in the School of Greek. Shortly after the Civil War, a similar department was announced for the School of Latin. The degree of Doctor of Philosophy was offered initially by the University as early as 1880 and was first awarded in 1885. No formal departmental organization for graduate study existed, however, until 1904. In that year, the Graduate School was established under regulations corresponding to the requirements of the Association of American Universities, in which the University of Virginia was the first southern university to hold membership. The administrative offices of the Graduate School of Arts and Sciences are as follows: Admissions Office, 437 Cabell Hall (434-924-7184); Enrolled Student Office, 438 Cabell Hall (434-924-7183); and Dean's Office, 419 Cabell Hall (434-924-3389). The mailing address is University of Virginia, P.O. Box 400775, Charlottesville, VA 22904-4775.

Programs and Degrees Offered
Advanced degrees offered by the Graduate School of Arts and Sciences include the Master of Arts (M.A.), the Master of Arts in Physics Education (M.A.P.E.), Master of Fine Arts (M.F.A.), the Master of Public Health (M.P.H.), the Master of Science (M.S.), and the Doctor of Philosophy (Ph.D.).

<table>
<thead>
<tr>
<th>Department Offered</th>
<th>Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Art and Architectural History, History of Astronomy</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Biochemistry and Molecular Genetics</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Bioethics</td>
<td>M.A.</td>
</tr>
<tr>
<td>Biological and Physical Sciences</td>
<td>M.S.</td>
</tr>
<tr>
<td>Biology</td>
<td>M.A., M.S., Ph.D.</td>
</tr>
<tr>
<td>Biophysics (Program)</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Cell &amp; Molecular Biology Chemistry</td>
<td>Non-degree</td>
</tr>
<tr>
<td>Classical</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Developmental Biology</td>
<td>Non-degree</td>
</tr>
<tr>
<td>Drama</td>
<td>M.F.A.</td>
</tr>
<tr>
<td>East Asian Studies</td>
<td>M.A.</td>
</tr>
<tr>
<td>Economics</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>English</td>
<td>M.A., M.F.A. in</td>
</tr>
<tr>
<td>Creative Writing, Ph.D.</td>
<td>Environmental Sciences</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>M.A., M.S., Ph.D.</td>
</tr>
<tr>
<td>French</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>German</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Health Evaluation Sciences</td>
<td>M.S.</td>
</tr>
<tr>
<td>History</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Immunology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Italian</td>
<td>M.A.</td>
</tr>
<tr>
<td>Linguistics</td>
<td>M.A.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>M.A., M.S., Ph.D.</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Molecular Medicine</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Music</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Neuroscience (Program)</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Nursing</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Philosophy</td>
<td>M.A., M.A.P.E., M.S., Ph.D.</td>
</tr>
<tr>
<td>Physics</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Physiology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Politics</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Psychology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Public Health</td>
<td>M.P.H.</td>
</tr>
<tr>
<td>Religious Studies</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Slavic Languages and Literature</td>
<td>Spanish</td>
</tr>
<tr>
<td>Sociology</td>
<td>M.A., Ph.D.</td>
</tr>
<tr>
<td>Statistics</td>
<td>M.A., Ph.D.</td>
</tr>
</tbody>
</table>

Table of Major Requirements
See departmental entries for any departmental degree requirements.

- M.A., M.S.
  - Fee Requirement
  - Language Requirement
  - Residency Requirement
  - Time Limitation
  - Final Examination

- M.F.A.
  (Drama and English only)
  - See drama and English departments for statement of requirements.

- Ph.D.
  - Academic Requirement
  - Language Requirement
  - Residency Requirement
  - Time Limitation
  - Dissertation/Final Examination

- Deadline Dates For The Above Degrees
  - Degree applications are due:
    - no later than October 1 if the degree is to be conferred in January.
    - no later than February 1 if the degree is to be conferred in May.
    - no later than July 1 if the degree is to be conferred in August.

  - Theses/Dissertations are due:
    - no later than November 1 if the degree is to be conferred in January.

  - Title Pages are due:
    - no later than August 1 if the degree is to be conferred in August.
Special Programs and Centers
In addition to the degree programs listed above, graduate instruction in arts and sciences is provided through the following special programs and centers located on the Grounds of the University.

The Carter G. Woodson Institute The Carter G. Woodson Institute for African-American and African Studies was established to promote excellence in research and teaching in black studies at the University of Virginia. Drawing on the resources of humanities and social science departments that treat the black experience, the Woodson Institute offers a variety of programs designed to be of help and interest to the University community.

In addition to supervising the undergraduate program in African-American and African Studies, the Woodson Institute also conducts a residential fellowships program, administers black studies research support for University faculty members and doctoral candidates, and offers a colloquium series featuring resident fellows, University faculty members, and distinguished visitors.

Cell and Molecular Biology This is an interdisciplinary program offered by faculty from eight basic science departments and programs.

Center for East Asian Studies An interdisciplinary group of faculty specializing in East and Southeast Asia, this center exists to encourage and facilitate interest in China, Japan and other countries of East and Southeast Asia at the University. The center administers the M.A. Program in Asian Studies, graduate certification in East and Southeast Asia, as well as a research travel grants program for students and faculty and a speakers series on Asian topics.

Center for South Asian Studies The Center for South Asian Studies at the University is one of the nine federally funded National Resource Centers for the Study of South Asia—its diverse peoples, languages, cultures, religions, and history. Coordinating academic studies, outreach programs, and research relating to Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka, and Tibet, the center offers a wide range of courses in languages and the disciplines, a comprehensive library, and substantial fellowship and assistantship awards, as well as educational and cultural programs in the community.

Center for Public Service The Center for Public Service was created in 1987 by the merger of the former Institute of Government and portions of the former Tayloe Murphy Institute. With research programs in government, public policy, business and economics, and demographics, the center brings multiple perspectives to the study of Virginia. It assists both state and local governments in the commonwealth with research into specific issues, management expertise, planning, and social and economic data. The center also sponsors professional education programs for government managers and elected officials, and it operates civic education programs like the Virginia Commission on the Bicentennial of the United States Constitution and the Teacher Research Service. In all its work, the center aims to apply the University's resources to improving the public life of Virginia.

Senior staff members are University faculty who frequently teach courses in their respective fields. The center employs both work-study students, who serve as office staff, and graduate research assistants, who gain firsthand experience in research and government by participating in center projects. The center's publications program makes readily available to the public the work of faculty and students on Virginia to supplement students' course work in political science, economics, history, and sociology. Besides its central offices in Charlottesville, the center maintains a Southwest Virginia office in Wise County.

The Center for Russian and East European Studies This center is an interdisciplinary graduate and undergraduate program concerned with Russia and Eastern Europe. Further information may be obtained from the center's director or from the chair of the academic department in which the student plans to enroll.

Center for Survey Research The Center for Survey Research (CSR) enhances the research capabilities of the University by making available the technical resources needed for survey research of the highest scientific quality. CSR produces, and helps others produce, academically visible and innovative research that contributes to substantive knowledge in the social sciences and related fields, and advances the ongoing technical development of scientific survey methods. The center assists faculty in their research as well as government agencies, private foundations, businesses, and non-profit organizations by consulting and carrying out project design, data collection, and data analysis.

In addition to its expert research and teaching faculty, CSR's staff includes graduate research assistants, undergraduate interns, and part-time student employees who gain firsthand knowledge of the theory and practice of survey research. The center works with faculty, staff, and students from all schools in the University.

White Burkett Miller Center of Public Affairs The Miller Center is a privately endowed research center with a fifteen year history of contributing to the deeper understanding of public issues and to the amelioration of major national problems. The center undertakes intensive research into issues of governance, with a unique emphasis on the role of the presidency in the American political system. In its J. Wilson Newman Pavilion patterned after the Virginia House of Burgesses, the center sponsors a series of conferences, twice weekly forums, workshops, and lectures engaging faculty, students, and community leaders in serious continuing dialogue.

The center has a small continuing staff, holding joint appointments in University departments including the Woodrow Wilson Department of Politics. Outstanding graduate students also assist the center and write theses and dissertations.

By facilitating close and sustained cooperation between scholars, policy makers, and men and women of affairs, the center encourages a new perspective on public affairs reflected in some 300 publications, occasional papers, and articles appearing in its scholarly Journal. Through the combined efforts of its community of scholars and experienced national leaders who have been members of the seven national commissions, the center seeks to direct the attention of officials and the public to the most urgent problems of national government and contribute to the clarification and improvement of governance.

The Thomas Jefferson Center for Studies in Political Economy This center was established in 1957. Its purpose is to facilitate research activities in the Department of Economics. Specific activities of the center have included the sponsorship of visiting scholars and professors, the sponsorship of lectures and seminars, the award of fellowships, and the publication of research results.

Virginia Graduate Marine Science Consortium In December 1978, the State Council of Higher Education for Virginia recommended the creation of the Virginia Graduate Marine Science Consortium in its report, Graduate Marine Science Education in Virginia. The 1979 General Assembly passed the enabling legislation (Code of Virginia, Section 23-9.9:1).

The goals of the Consortium are:
• To promote cooperation in marine science instruction, research, training and advisory service, among the members of the consortium and within Virginia.
• To encourage and assist where possible the development of graduate marine research and instruction programs at institutions within Virginia, including those uniquely qualified to serve the needs of minority and traditionally disadvantaged groups.
• To advise the Council of Higher Education in matters relating to marine science instruction, research, training, and advisory service.
• To coordinate the state’s activities within the National Sea Grant College Program, including efforts to attain Sea Grant College designation for the commonwealth.
• To encourage marine science public service activities by the members of the consortium and to assist them in matching their service activities with the needs of the various constituencies.

Activities of the Consortium are governed by a board of directors which establishes all policies and procedures necessary for operation of the organization. The board of directors is composed of the presidents of all institutions of higher education which hold membership in the consortium and the Director of the State Council of Higher Education.
Financial Assistance

The University offers financial assistance to students in the Graduate School of Arts and Sciences through a variety of programs: fellowships, assistantships, work-study plans, and loans. Each of these programs is administered by a separate office and a student interested in applying for one of them should read the sections below to find the office to contact. Most superior students can expect to receive aid of some kind throughout their graduate careers.

Fellowships

The Graduate School of Arts and Sciences has a number of merit fellowships supported by endowments, gifts, and other sources which it offers to exceptional students. These fellowships are available to all students and are awarded on the individual’s academic achievements and promise. Fellowships are granted with the provisos that good academic standing is maintained and that the recipient remain in residence at the University during the award period. In addition to these fellowships some departments have merit fellowships with comparable stipends that are awarded by the department on the same basis as the Graduate School fellowships.

A student must be nominated by his or her department in order to be considered for a Graduate School fellowship. Students seeking admission to the Graduate School who indicate on the application for admission that they seek financial aid will automatically be considered by the department to which they are applying as candidates for fellowships. Returning graduate students should indicate to their department that they wish to be considered for a fellowship. To be considered for a school-wide fellowship, a new student should have the application for admission form in the Admissions Office of the Graduate School, 437 Cabell Hall, by December 2. Closing dates for departmental awards may vary. Returning students should contact their department for deadlines on fellowship applications.

All fellowships, with the exception of the President’s and the Jefferson’s Fellowships, are awarded for no longer than one academic year and are not automatically renewed. The President’s Fellowship is a three-year award, and the President’s Fellows receive financial assistance of at least $16,000 plus tuition, fees and a health insurance subsidy per session.

The principal endowed and gift fellowships of the Graduate School are listed below:

Mrs. Charles E. Bryant Fund Established in 1987 with annual gifts from Anna Thompson and a bequest in 2003 in memory of her mother, Mrs. Charles E. Bryant. Preference shall be given first to Virginia residents pursing doctoral degrees, second to foreign nationals pursuing doctoral degrees, and third to other promising graduate students. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

Admission Information

Admission Procedure

Application for admission must be made upon forms available either at http://artsandsciences.virginia.edu/grad/admission or from the Graduate School Office. On-line applica-
**Virginia Mason Davidge Fellowships**
Established through the gift of David Randall-McIver, from the income of the Virginia Mason Davidge Foundation. These fellowships are awarded to students on the basis of “ability, scholarship, character, and need.” Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**Philip Francis duPont Fellowships**
Established in 1928 by a gift from Philip Francis du Pont, an alumnus. These fellowships are awarded on the basis of achievement and scholarly promise. Ordinarily only students whose ages do not exceed 35 years are eligible. In some instances these fellowships may be supplemented by graduate assistantships. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**Governor’s Fellowship**
Funded by the Commonwealth of Virginia, this fellowship is awarded in all Ph.D.-granting departments and is available to Virginia residents only. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**Jefferson Scholars Graduate Fellowships**
Established in 2001 through private donations to the Jefferson Scholars Foundation and the College Foundation, the fellowship carries a living stipend totaling at least $18,000 ($25,000 for students in chemistry, biology, and physics) plus tuition, fees, and health insurance, renewable for five years. Two years and three of the fellowship may include teaching responsibilities. Additionally, recipients are awarded a $3,000 research stipend to support dissertation expenses. These prestigious fellowships, awarded solely on the basis of merit, are consistent with Thomas Jefferson’s belief in a natural aristocracy of scholars and leaders who would share their talents with the wider world for the common good. Candidates demonstrating exceptional potential as scholars and possessing a willingness to share their passion with a broad audience are nominated by departments and selected based on a national competition conducted in Charlottesville each February. Applicants must be for candidacy for the Ph.D. at the University of Virginia. Candidates for the M.F.A. in disciplines where that is the terminal degree are also eligible. Candidates must complete their applications to the department and Graduate School of Arts and Sciences no later than December 2. Once nominations are received, the Jefferson Scholars Foundation and the Graduate School of Arts and Sciences will host all candidates at a selection weekend in Charlottesville in February.

**Craig W. MacDonald Fellowship**
Established in 1930 under the will of the late Susan L. Stanard as a memorial to her brother, Captain Craig Woodrow MacDonald, who was killed at the Battle of Cold Harbor. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**President’s Fellowship**
Established in 1980 by University President Frank L. Hereford, Jr., this three-year fellowship carries a stipend of $16,000 plus tuition, fees, and a health care subsidy. In the second and third years of the fellowship, President’s Fellows may be required to serve as teaching or research assistants. President’s Fellows are selected on a merit basis from entering students in all Ph.D.-granting departments. Nominations are made to the Dean of the Graduate School by Ph.D.-granting departments.

**Anne Francis Stead Memorial Fellowship**
An endowed fellowship established in 1982 by a gift from the estate of Mrs. Anne Francis Stead. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**William H. Palmer Young Fellowship**
An endowed fellowship established in 1982 by the estate of his mother, Claudia Palmer Young. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**State and Regional Scholarships and Fellowships**

**John B. Adger Scholarships** (three to five scholarships or fellowships with a stipend of approximately $500 each) were created under the will of the late Jennie W. Adger in memory of her husband, John B. Adger, (M.A., 1880), and are awarded to male students, with preference to those from South Carolina or Virginia, who are taking courses leading to the degree of B.A. or M.A. The awards are made by the Alumni Board of Trustees of the University of Virginia Endowment Fund either to entering students or to students already at UVA, and may be renewed from year to year if the holders’ records so justify. Half the award is paid to the recipients at the beginning of the first semester and the balance at the beginning of the second semester. Application should be made to the Vice President for Student Affairs.

**Bayly-Tiffany Scholarships**
Established in 1930 by a bequest of Mrs. Evelyn May Bayly Tiffany as a memorial to Thomas Henry Bayly and Louis McLane Tiffany. Preference is given to students from Hampton and Accomack counties, Virginia, but if qualified applicants are not available from these counties, awards are available to students from other portions of Virginia or from Maryland. Stipends vary according to need. Application should be made to the Office of Financial Aid.

**Mrs. Charles E. Bryant Fund**
Established in 1987 with annual gifts from Anna Thompson and a bequest in 2003 in memory of her mother, Mrs. Charles E. Bryant. Preference shall be given first to Virginia residents pursuing doctoral degrees, second to foreign nationals pursuing doctoral degrees, and third to other promising graduate students. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**John Y. Mason Fellowship**
Established in 1892 upon the gift of Col. Archer Anderson (Virginia, 1858), of Richmond. The holder must have been born in Virginia and must be a competent and deserving student in need of financial aid. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**International Scholarships**

**Mrs. Charles E. Bryant Fund**
Established in 1987 with annual gifts from Anna Thompson and a bequest in 2003 in memory of her mother, Mrs. Charles E. Bryant. Preference shall be given first to Virginia residents pursuing doctoral degrees, second to foreign nationals pursuing doctoral degrees, and third to other promising graduate students. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**Aimee Marteau Scholarship**
Awarded to a worthy student from the Republic of France on the recommendation of the Department of French Language and Literature. Income is derived from a bequest under the will of the late Edith S. Figg.

**Minority Fellowship**

**William Randolph Hearst Minority Fellowship**
An endowed fellowship established in 1990 by a gift from the Hearst Foundation. This fund is used for fellowship support to recruit and retain African-American students in the biological and physical sciences. Appointments are made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

**Departmental Fellowships**

**Anthropology**

**David A. Harrison III Fellowship**
An endowed fellowship established in 1994 by a gift from David A. Harrison III. These funds provide a graduate fellowship for a student in archaeology. Appointment is made upon the recommendation of the Chair of the Department of Anthropology.

**Architectural History, History, and Politics**

**Thomas Jefferson Foundation Fellowships**
Established by the Thomas Jefferson Memorial Foundation with a view to perpetuating the spirit and ideals of Thomas Jefferson. The Foundation provides an annual stipend of $12,000 for the UVa/Monticello Dissertation Fellowship. Preference will be given to applicants who expect to make college teaching their career and whose interests in history or political science focus generally upon the history, political ideas, institutions, and culture of the age of Jefferson. A faculty committee consisting of Thomas Jefferson scholars selects fellowship recipients.
Art History

Frederick Nichols Fellowship An endowed fellowship established in 1999 with a gift from Roderick H. Cushman, an alumnus of the University. The fund is used by the Department of Art for the support of research travel by their graduate students.

William B. Sietz Fellowship in World Art An endowment fellowship established in 1995 with a gift from Ransom C. Lummis and Isabel S. Lummis in honor of Mr. Sietz, a former Professor of Fine Arts. Appointment is made upon the recommendation of the Chair of the Department of Art History.

Astronomy and Psychology

Mariana Scott Hamilton Fellowship An endowed fellowship established in 1988 with a bequest from the estate of Mariana Scott Hamilton in memory of her brother, Hugh Scott Hamilton. The fund provides fellowships for graduate students in the departments of Astronomy and Psychology, which were of special interest to Mr. Hamilton. Appointment is made upon the recommendation of the Chairs of the departments of Astronomy and Psychology.

Biology

Runk Fellowship An endowed fellowship established in 1988 with a gift from the Seven Society. The fund provides fellowship support for graduate teaching assistants. Appointment is made upon the recommendation of the Chair of the Department of Biology.

Margaret Walton Fellowship An endowed fellowship established in 1977 by a bequest from the estate of Margaret Walton. The fund provides scholarships to worthy students to attend summer sessions at the Mountain Lake Biological Station, with preference to Longwood College students. Appointment is made upon the recommendation of the Chair of the Department of Biology.

Chemistry

Alfred and Frances P. Burger Fellowship An endowed fellowship established in 2004 by a bequest from the estate of Alfred and Frances P. Burger. This fund provides fellowships to third- and fourth-year graduate students in the Department of Chemistry who are no longer obliged to teach as part of their graduate training responsibilities. Appointment is made upon the recommendation of the Chair of the Department of Chemistry.

T. Aubrey White Fellowship An endowed fellowship established with a gift in 1985 and a subsequent gift in 1995 from T. Aubrey White. The fund is used for graduate students in the Department of Chemistry. Appointment is made upon the recommendation of the Chair of the Department of Chemistry.

Classics

Gessner Harrison Fellowship An endowed fellowship established in 1933 by a bequest of Robert Lewis Harrison. Appointment is made upon the recommendation of the Chair of the Department of Classics.

Basil L. Gildersleeve Fellowship An endowed fellowship established in 1989 by a bequest from the estate of Emma Gildersleeve Lane. The fund provides financial assistance to students in the Department of Classics. Appointment is made upon the recommendation of the Chair of the Department of Classics.

Drama

Joseph & Rosemary Erdman Fellowship An endowed fellowship established in 1997 with a gift from Joseph Erdman. This fund provides financial assistance for non-Virginia resident graduate students in Drama. Appointment is made upon the recommendation of the Chair of the Department of Drama.

Edgar Shannon Graduate Support Fund in Drama An endowed fellowship established in 2002 with a gift from John H. Birdsell III. This award provides financial support to two graduate students in the Master of Fine Arts in Directing program of the Drama Department. Appointment is made upon the recommendation of the Chair of the Department of Drama.

Economics

William A. & Georgianna Kaeser Huneke Fellowship An endowed fellowship established in 1998 with a gift from William F. Huneke and Teresa G. Wilson. Appointment is made upon the recommendation of the Chair of the Department of Economics.

MasterCard Fellowship An endowed fellowship established in 1997 with a gift from MasterCard International. This fund provides financial support to students of international economics. Appointment is made upon the recommendation of the Chair of the Department of Economics.

Environmental Sciences

William E. Odum Memorial Fellowship An endowed fellowship established in 1995 with a gift from Eugene P. and Martha H. Odum. The fund provides fellowships to graduate students in the Department of Environmental Sciences who are doing research on wetland and marsh environments. Appointment is made upon the recommendation of the Chair of the Department of Environmental Sciences.

Floyd Stovall Fellowship An endowed fellowship established in 1993 with a bequest from the estate of Floyd Stovall. This fund provides fellowships for students studying American Literature. Appointment is made upon the recommendation of the Chair of the Department of English.

Environmental Sciences

William E. Odum Memorial Fellowship An endowed fellowship established in 1995 with a gift from Eugene P. and Martha H. Odum. The fund provides fellowships to graduate students in the Department of Environmental Sciences who are doing research on wetland and marsh environments. Appointment is made upon the recommendation of the Chair of the Department of Environmental Sciences.
History

Julian Bishko Fellowship An endowed fellowship established in 1996 with a gift from an anonymous donor. This fund provides fellowships to graduate students in the Department of History. Appointment is made upon the recommendation of the Chair of the Department of History.

Edward Vaughan Howell Fellowship Fund An endowed fellowship established in 1997 with a gift from W. Nathaniel and Margie Saunders Howell. This fund is used for fellowships to support graduate students in the Department of History. Appointment is made upon the recommendation of the Chair of the Department of History.

Cincinnati Historical Fellowship Founded in 1955 by the Society of the Cincinnati in the State of Virginia. The award is made annually by the society to a graduate student upon nomination of the faculty of the Corcoran Department of History. The award may be renewed for a second year of study at this or another university.

Mathematics

Edwin E. Floyd Fellowship An endowed fellowship established in 1994 with a gift from Peggy S. Floyd. This fund provides fellowships to students of pure (not applied) mathematics in the Department of Mathematics. Appointment is made upon the recommendation of the Chair of the Department of Mathematics.

Music

Samuel B. Stewart Jr. Fellowship An endowed fellowship established in 1999 with a gift from Celeste Stewart. This fund provides fellowships in the Department of Music. Appointment is made upon the recommendation of the Chair of the Department of Music.

Physics

Joseph Hall Bodine Scholarship An endowed fellowship founded in 1965 by a bequest from Joseph Hall Bodine. This fund is used as a scholarship for married graduate students majoring in physics. Appointment is made upon the recommendation of the Chair of the Department of Physics.

Hugh P. Kelly Fellowship An endowed fellowship established in 1994 by a gift from Zita Stanislawski Kelly in memory of her husband, Hugh P. Kelly. This fund is used for fellowships to support graduate students in the Department of Physics. Appointment is made upon the recommendation of the Chair of the Department of Physics.

Morris E. Rose Fellowship An endowed fellowship established in 2000 by a bequest from the estate of Olive P. Rose. This fund is used for fellowships for graduate students in the Department of Physics. Appointment is made upon the recommendation of the Chair of the Department of Physics.

Leland B. and Virginia C. Snoddy Fellowship An endowed fellowship established in 1964 by a bequest from Virginia Croft Snoddy. This fund provides fellowships for graduate students specializing in research in physics. Appointment is made upon the recommendation of the Chair of the Department of Physics.

Politics

Helen Lee Lassen Fellowship An endowed fellowship established with a gift from the Doherty Foundation. This fund provides fellowships to graduate students in the Department of Politics. Appointment is made upon the recommendation of the Chair of the Woodrow Wilson Department of Politics.

John Allan Love Presidential Fellowship An endowed fellowship established in 1982 from a bequest made in 1961 by John Allan Love, a 1907 graduate of the University. Recipients must be from the State of Missouri, preferably from the St. Louis area. Appointment is made upon the recommendation of the Chair of the Woodrow Wilson Department of Politics.

David Dorrance Preston Scholarship Fund An endowed fellowship established in 1979 with a bequest from the estate of Frances Dorrance Preston in memory of her son. The fund provides fellowships for graduate students in the Department of Politics. Appointment is made upon the recommendation of the Chair of the Woodrow Wilson Department of Politics.

Leone Reaves Spicer Fellowships and Scholarships An endowed fellowship established in 1985 with a bequest from the estate of George and Leone Spicer. The fund provides fellowships for graduate students in the Department of Politics who demonstrate exemplary character, high scholastic ability and who are in genuine need of financial assistance. Appointment is made upon the recommendation of the Chair of the Woodrow Wilson Department of Politics.

Woodrow Wilson Foreign Affairs Fellowship An endowed fellowship established in the 1960s and first awarded in 1982. The fund provides fellowships for graduate students in the Department of Politics. Appointment is made upon the recommendation of the Chair of the Woodrow Wilson Department of Politics.

Religious Studies

Elizabeth Kyle Scholarships and Fellowships An endowed fellowship established in 1988 with a bequest from the trust of Edwin B. Kyle, in memory of his mother, Elizabeth Kyle. The fund provides fellowships to graduate students in the Department of Religious Studies on the basis of merit and need. Appointment is made upon the recommendation of the Chair of the Department of Religious Studies.

DeScherer Family Fund for Judaic Studies An endowed fellowship established in 1995 with a gift by Richard K. and Jennie L. DeScherer. This fund provides fellowships for students enrolled in the Judaic Studies program in the Department of Religious Studies. Appointment is made upon the recommendation of the Chair of the Department of Religious Studies.

Henry Clay Marchant Fellowship An endowed fellowship established in 1923 with a bequest from the estate of Fanny Bragg Marchant. This fund has a preferred use for scholars preparing themselves to be medical missionaries or those who expect to enter the ministry. At present, the awards are made to students in the Department of Religious Studies who will be entering the ministry. Appointment is made upon the recommendation of the Chair of the Department of Religious Studies.

Science

BP-America Fellowship Fund Established in 1984 by a gift from The Standard Oil Company and originally named the SOHIO Fellowship. This fund is for graduate students in the natural sciences. The fund was renamed the BP America Fund in 1989 when Standard Oil of Ohio became part of BP America. Appointment is made upon the recommendation of the Dean of the Graduate School of Arts and Sciences.

Carlos A. & Esther H. Farrar Fellowship An endowed fellowship established in 1994 with a gift from Carlos A. Farrar. This fund provides fellowships to deserving graduate students studying in disciplines and programs pertaining to studies of the universe (i.e., astronomy, mathematics, and physics). These fellowships are awarded on the basis of scholastic merit and financial need upon the recommendation of the Chairs of the Departments of Astronomy, Mathematics, and Physics.

Sociology

Phelps-Stokes Fellowship An endowed fellowship established in 1911 with a gift from the Phelps Stokes Fund of New York (established by Miss Caroline Phelps Stokes). This fund is used for graduate students in the Department of Sociology whose research centers on the study of African-Americans. Appointment is made upon the recommendation of the Chair of the Department of Sociology.

Assistantships

Assistantships and part-time instructorships are available in most departments. These involve teaching, grading, laboratory assistance, and other duties. The salary varies according to the duties and the amount of time required of the student. For information concerning assistantships, applicants should write directly to the Director of Graduate Studies of the department in which they are interested.
Out-of-state graduate students who are teaching assistants and are paid at least $5,000 may receive a tuition adjustment fellowship to pay the difference between the out-of-state and in-state tuition. Out-of-state research assistants and graduate assistants who are paid at least $5,000 may receive a tuition adjustment fellowship to pay a percentage (up to 100 percent) of the difference between out-of-state and in-state tuition.

Graduate teaching assistants who are employed at half-time or greater (44 hours per month) will have their in-state tuition and a tuition adjustment fellowship to pay a percentage of their out-of-state and in-state tuition. Out-of-state graduate teaching assistants who are paid at least $5,000 may receive a tuition adjustment fellowship to pay a percentage of their out-of-state and in-state tuition.

Loans and Part-Time Employment

In addition to the fellowships and assistantships described above, graduate students may apply for financial assistance through the Office of Financial Aid to Students. All awards from federal loan or employment funds are based on need. To apply for assistance a University financial aid application must be submitted to the Office of Financial Aid to Students and a Free Application for Federal Student Aid (FAFSA) must reach the appropriate processing center by March 31. For further information or applications, contact the Office of Financial Aid to Students, P.O. Box 400207, University of Virginia, Charlottesville, VA 22904-4207. See chapter 3 for further information.

Graduate Academic Regulations

Course Enrollment and Final Registration

On the days announced for advising and arranging course programs, the student should check the Office of the University Registrar’s on-line site for current information: www.virginia.edu/registrar. Next, the student should confer with the authorized representatives (either the chair or the graduate advisor) of the student’s major department to select a recommended course of study from the session; this recommended program should then be submitted in person to the dean for approval. To be enrolled as a graduate student it is necessary that at least half of the course load be in graduate-level courses.

Registration is not complete until all fees have been paid or satisfactory arrangements have been made with the Financial Services. A student’s registration record and consequently the fee determination will become fixed eight weeks after the first day of classes. Changes in a student’s registration record after the final day for dropping a course can be made only with the approval of the dean.

Every graduate student, resident or non-resident, must be registered in the Graduate School during the semester in which he or she is an applicant for a degree. Non-resident degree applicants must register at the beginning of the second semester, as ordinarily registration will not be accepted later in the session. See section on readmission after voluntary withdrawal.

Attendance

Students are expected to attend classes throughout the session with the exception of University holidays. When necessary, excuses for absence from class are arranged between the student and the instructor of the course in question. Routine excuses for illness are not furnished by the Department of Student Health either to the student or to the instructor. On request of the dean, the Department of Student Health will evaluate the effect of any illness upon a student’s attendance and academic performance. Failure by students to attend lectures and other prescribed exercises in the courses for which they are registered may subject them to penalties for non-attendance.

Attendance Upon Examinations

Written examinations are an essential part of the work of most courses in the Graduate School, and attendance at them is required of every student. Absence from examination will not be excused except for sickness on the day of examination attested by a physician’s certificate or for other cause which the graduate faculty by special action may approve. An unexcused absence is counted as a failure.

For courses in which the department does not require a final examination, permission can be granted to grade those courses on an S/U (satisfactory/unsatisfactory) basis. A report of IN (incomplete) on a graduate course is changed by the university registrar to a failing grade if the course is not completed by the end of the next semester (including the summer session). Unsatisfactory performance during any semester may be considered sufficient reason for enforced withdrawal from the University.

Application For A Degree

Any graduate student who wishes to become a candidate for a degree must file the degree application with the dean on a form available in the Enrolled Student Office, 438 Cabell Hall or on the web at: www.artsandsciences.virginia.edu/grad. All graduate degree applications must be submitted not later than October 1 if the degree is to be conferred in January, February 1 if the degree is to be conferred in May, or July 1 if the degree is to be conferred in August.

The degree application must include a program of work arranged in accordance with the degree requirements outlined in the following pages, and must state the title of the thesis or dissertation. A transcript of the applicant’s previous academic record, attesting the content of his or her baccalaureate degree, must also be on file in the Graduate School Office.

Graduate degrees are not conferred merely upon the basis of the number of courses passed, or the length of time spent in resident or non-resident work, but primarily upon the basis of the quality and scope of the candidate’s knowledge and the ability in the chosen field of study. The applicant’s graduate record should be better than a minimal passing average to be accepted as a candidate, and the department responsible for the student’s graduate program must qualify him or her for candidacy. The degree application, approved by the candidate's advisory professor and the chair of the department, is submitted to the dean.

Candidates who do not receive a degree in the semester for which their application has been approved must renew their application in proper form at the beginning of the semester in which candidacy for the degree is desired. Candidates who fail to receive their degree in the semester for which their application was approved must remove their name from the degree list by a specified date in the semester.

Voluntary Withdrawal

A graduate student may not voluntarily withdraw from the Graduate School of Arts and Sciences later than one week immediately preceding the beginning of course examinations. An official application to withdraw must be obtained from the Office of the Dean of the Graduate School of Arts and Science’ and must be approved by the dean, with a statement of the reason for the withdrawal. A student under 18 years of age must have parental approval of such withdrawal. The student must report to the Office of the Dean of Students for an exit interview. All student identification cards are to be deposited with the Dean of Students at the time of withdrawal. The official withdrawal form will be forwarded to the university registrar, who notifies all other administrative offices of the withdrawal action. A student who withdraws from the University for reason of ill health must notify the Department of Student Health, and subsequent medical clearance from the Department of Student Health is among the requirements for re-admission of all students. To apply for re-admission to the University, the student must submit an application to the academic dean’s office at least 60 days before the next University scheduled class registration.

Failure to comply with the above regulations will subject the student to suspension from the University by the Vice President for Student Affairs.

Readmission After Voluntary Withdrawal

Readmission to the Graduate School of Arts and Sciences is not automatic; after absence of a semester or longer, a former student must apply for re-admission to the Graduate School. This statement does not apply to graduate students pursuing graduate work in summer only.

Enforced Withdrawal

The student may be required to withdraw from the University if the academic advisor, the responsible departmental members and the Dean of the Graduate School of Arts and Sciences determine that the student is making unsatisfactory
progress toward a degree (See Grades, Voluntary Withdrawal, and University General Regulations).

**Posthumous Degrees** Eligibility for posthumous degrees extends only to students enrolled in B.A. and B.S. programs.

**Degree Requirements**

**Master's Degree**

The master’s degree will be conferred upon the holder of an approved baccalaureate degree who has fulfilled within the designated time limit all requirements as set forth below. Language requirements are included in the section on Ph.D. requirements. Successful candidates in those departments (science and mathematics) which offer both the M.A. and M.S. may upon recommendation of their departmental faculty elect the M.S. degree.

**Program of Studies**

No fewer than 24 credits of graduate courses must be successfully completed while regularly enrolled as a graduate student in the Graduate School of Arts and Sciences. The program should be arranged in consultation with the professors concerned, approved by a faculty advisor of the major subject or department, and then be approved by the dean in a formal degree application submitted not later than October 1 if the degree is to be conferred in January, February 1 if the degree is to be conferred in May, or July 1 if the degree is to be conferred in August. The courses may all be in one subject or department, but the candidate may, with the approval of his or her advisor, elect a limited number of appropriate courses offered in other departments. Only graduate courses (courses taught by members of one of the graduate faculties of the University) may be counted toward a graduate degree, and no extension, correspondence, home-study, or transfer courses will be counted toward the degrees of Master of Arts and Master of Science. Courses applied for a Master’s degree from one department may not be used to fulfill requirements for a Master’s degree in a second department of the Graduate School of Arts and Sciences.

Following the course descriptions for each department will be found statements of any special requirements in that department for the M.A. or M.S. degree.

**Thesis**

Departments may include a master’s thesis as one of the degree requirements. Detailed instructions on the subject and method of the thesis are available in departments. The physical standards for the thesis and the deadlines for submission are the same as those for the Ph.D. dissertation.

**Final Examination**

A candidate must receive a satisfactory standing in a final examination, oral or written or both, conducted by two or more faculty members designated by the department in which the candidate is working. The result of the examination, with the names of the examiners, must be reported by the chair of the examining committee to the Graduate School no later than two weeks before final exercises.

**Time Limitation**

All work for the master’s degree must be completed within five years from the time of admission if the work is done primarily during the regular academic session and within seven years if the work is done primarily in summer sessions. In special cases, upon approval of the Dean of the Graduate School of Arts and Sciences, out-of-date work may be reevaluated by examination.

**Master's Degrees in the Summer Session**

Any one of the master’s degrees described in the preceding pages may be obtained by properly qualified persons in four full summer sessions of residence, the equivalent in time of the regular session. Except by special permission of the dean and the committee concerned, not more than two graduate courses may be taken in each summer session and credited toward the 24 credits of graduate courses required for the master’s degree.

**Admission and Registration**

In order to receive graduate credit for any courses taken in the summer session, all graduate students must conform to the same formalities for admission and registration as stated above for the regular session. Students should check the Summer Session’s on-line site for current registration information: www.virginia.edu/summer.

Applications for admission, accompanied by official transcripts, should be mailed in advance to the Graduate School of Arts and Sciences.

**Application for a Degree**

The requirements stated above for regular session students apply also to students in the summer session, with the exception that all students must submit their applications for the master’s degree to the Dean of the Graduate School of Arts and Sciences not later than July 1.

**Requirements**

The requirements stated above for regular session students also apply to students in the summer session. The candidate for the M.A. or M.S. degree must submit the thesis by August 1 to the Graduate School Office, in accord with the regulations stated in the section entitled Thesis.

All requirements must be met for graduate degrees in the summer session and a final report made to the Graduate School from the department at least a week prior to the date for the awarding of degrees. Graduate students in the summer session must complete all requirements for their master’s degrees within seven summers, or seven calendar years when a part of the work is taken in the regular academic year.

The regulations concerning grades and acceptance of degrees are the same as for recipients of the master’s degree in the regular session.

Under the course listings of the departments will be found statements of any special requirements for the degree of Master of Arts or Master of Science.

**Master of Fine Arts**

The Master of Fine Arts program is offered by the Departments of Drama and English. Specific requirements are listed following the course descriptions for these two departments.

**Doctor of Philosophy**

The degree of Doctor of Philosophy will be conferred upon the holder of an approved baccalaureate degree who has fulfilled within the designated time limit all requirements as set forth below under the headings: Language Requirements, Program of Studies, Dissertation, and Final Examination.

**Requirement Examinations in Foreign Languages for M.A./Ph.D. Candidates**

Students wishing to take foreign languages examinations to meet departmental or School graduate requirements should contact their departmental chair. Examinations are offered in Spanish, German, Italian, French, and Russian, and special arrangements may be made for ancient and other languages. Once the student has notified the department, a representative of that department will then contact the requested language department. At least two weeks’ notice should be given to the language department in order that arrangements be made for test administration.

Two types of tests are available: “proficiency” and “mastery.” Students should carefully review their departmental requirements before they indicate which level test they wish to take.

**Proficiency Examinations**

The proficiency examination for the M.A. and/or Ph.D. requirements is designed to test the student’s proficiency in the language.

The examination consists of a prose passage in the language to be translated in 90 minutes into adequate, if not literary, English. The length will be between 250-750 words. The tests are chosen out of recent books, journals, or news magazines, and an attempt is made whenever possible to select them as relating to the major discipline of the student being tested. The student has to demonstrate a clear understanding of syntactical structures and some basic knowledge of cultural references. Verb wheels and dictionaries are allowed.

The results of the examinations are sent to the Office of the Dean of the Graduate School of Arts and Sciences, with the graded examination booklets. The booklets are the property of the University of Virginia. A copy of the results is sent to the graduate advisor and the secretary of the student’s department.

The grading fee for the exams set by the Graduate School, and students will be informed by their department that they must clear administrative matters with the Graduate School before receiving credit for the examination.

**Mastery Examination**

The mastery examination differs from the proficiency examination in that it lasts two hours and is made up of three parts:
1. A short critical prose passage (not necessarily contemporary) relating to the student’s major to be translated in 40 minutes.

2. Analysis of a short text relating to the student’s major. Forty minutes are allowed to answer six to eight questions about the form and meaning of the proposed text.

3. A short essay in the language with a general question relating to the student’s major.

Dictionaries are permitted. Administrative details for the mastery examination are the same as those for the proficiency examination.

**Program of Studies** Constituting not less than three complete sessions of full-time graduate work or the equivalent, the program of studies must be successfully completed under satisfactory conditions of registration. The student may elect courses in more than one department or subject if they contribute appropriately to his or her program, but the entire program must be directed and approved by one department. (See Table of Major Requirements for specific requirements.)

A formal degree application must be submitted and must be approved by the dean not later than October 1 if the degree is to be conferred in January, February 1 if the degree is to be conferred in May, or July 1 if the degree is to be conferred in August.

With the approval of the supervising department and the dean, up to one session of the required three sessions of graduate work may be completed at another graduate school or may be taken at this University on a part-time basis; also with the approval of the supervising department and the dean, up to one session or the equivalent may be spent in dissertation research elsewhere. However, no candidacy will be approved unless the applicant has spent at least two consecutive semesters during the academic year beyond the M.A. or equivalent level in full-time residential study at this University.

Exceptional students who complete all other degree requirements within two calendar years of entering this Graduate School may petition the dean to waive the third year of graduate work.

Following the course listings of the departments will be found statements of any special requirements for the degree of Doctor of Philosophy.

**Dissertation** The preparation of a dissertation exhibiting independent research in the candidate’s major subject is required. The advisory professor will periodically evaluate the student’s progress on the dissertation. If the student’s progress is judged to be unsatisfactory, the advisory professor may recommend a new topic or may recommend to the department that the student not be allowed to continue his or her graduate work.

The title of the dissertation is to be approved by the advisory professor and submitted to the dean on the degree application. The dissertation must be submitted in completed form to the department for approval by the advisory professor and by the special examining committee (see below, under “Final Examination”). The original and one copy, or two electrostatic copies of the dissertation on acceptable paper, must be brought to the Graduate School Office for inspection not later than December 1 if the degree is to be conferred in January, or May 1 if the degree is to be conferred in May, or August 1 if the degree is to be conferred in August.

The dissertation must be double-spaced, upon 20 pound weight bond paper of good quality (either Crane’s Thesis Paper, Standard Permalife, Xerox Archival Bond Paper, Capitol Bond Paper, Swan Linen Bond Paper, Millers Falls Old Deerfield Bond Paper, or Southworth Four Star Bond Paper), 8 1/2 x 11 inches, with a left-hand margin one and one-half inches in width. The remaining margins are to be one inch wide. Paper for the second copy must be of the same quality as the original, whatever process of reproduction is used, though it may be of 16 pound weight. Pages should be numbered throughout, consecutively. Dissertations must be in manila envelopes with the following information noted thereon: Name of Author, Abbreviated Title of Dissertation (36 spaces or less), Degree, and Date to be Confirmed. See website: http://artsandsciences.virginia.edu/grad/degree for more detailed instructions.

After two copies of the dissertation have been inspected and approved at the Graduate School Office, the student will deliver these copies to the Photography Division of Printing Services, Alderman Library, and pay for the cost of permanent binding. A receipt showing that these two copies of the dissertation have been delivered to the Photography Division of Printing Services must be returned to the Graduate School Office. Personal copies will also be handled by the Photography Division of Printing Services. Theses/Dissertations can be submitted electronically instead of submitting hard copies. Please visit the Printing Services webpage at www.virginia.edu/uuvprint/dissertation.html for complete details to ensure your files meet all guidelines.

More detailed instructions for preparing a dissertation are available in the Enrolled Student Office (438 Cabell Hall, 924-7183) or at http://artsandsciences.virginia.edu/grad/degree. The student should consult the advisory professor in reference to any special departmental requirements relating to the dissertation.

All dissertations will be published by having a master microfilm negative made from each original dissertation. These negatives will be stored and serviced by University Microfilms of Ann Arbor, Michigan. Positive microfilms, or enlarged prints, will be produced to order at the standard rate for other scholars who desire access to any dissertation.

Each dissertation, when submitted, must be accompanied by three copies of an abstract of 350 words or fewer. The abstract, or summary, will be published in Microfilms Abstracts for national distribution. No dissertation will be accepted without this abstract.

A fee of $75 for the above service must be paid to the Photography Division of Printing Services by the candidate for the Ph.D. degree before it is conferred.

**Final Examination** A candidate must receive a satisfactory standing in a final examination, oral, written, or both. Upon acceptance of the dissertation by the advisory professor and the department concerned, the dean will appoint, upon nomination of the department, a special committee to examine the candidate upon such phases of the major subject and of allied subjects as the committee shall prescribe. The examining committee, under the chairmanship of the advisor professor, will consist of not fewer than four members from the graduate faculty, one of whom must be from another department and serves as a representative of the graduate faculty. Through its chair, the examining committee may invite other members of the departmental faculty to take part in the examination; indeed, it is recommended that the doctoral examination be given before the entire professional staff of the department concerned. The result of the examination, with the names of the examiners and their departmental affiliation, must be reported by the chair of the examining committee to the Graduate School no later than two weeks before final exercises.

The candidate shall not be admitted to the final examination before satisfying the foreign language requirement, if such is required by the candidate’s department. No candidate may be admitted to the final examination until the dissertation has been accepted. Preliminary examinations may, in addition, be required by individual departments.

**Time Limitation** All requirements for the Ph.D. must be completed within seven years from the date of admittance into the Ph.D. Program. In special cases, upon approval of the Dean of the Graduate School of Arts and Sciences, work out-of-date may be revalidated by examination. In case of interruption of work by military service, time spent in service will be excluded from the computation of this seven-year period.

**Certificate of Candidacy** A Certificate of Candidacy may be awarded by certain departments to students who have completed all requirements for the Ph.D. degree except for the dissertation.
Degree Requirements

The doctorate requires 72 credits at the graduate level, comprising at least 54 of course work (the remaining 18 may be non-topical research), and the successful completion of a dissertation. Students entering with an M.A. degree can transfer up to 24 graduate credits.

Several additional requirements reflect the department’s commitment to a critical assessment of the history of anthropology, to an integrated approach to anthropology across the sub-disciplines (socio-cultural anthropology, archaeology, and linguistics), and to a program flexibly shaped to the particular needs and goals of each student. The first consists of the “common course” in the history and theory of anthropology, on anthropological monographs, and in archaeological and linguistic anthropology, which are to be taken in the first three semesters. The second fulfilled in the fourth semester, consists of a presentation before the faculty and other graduate students of a research paper that is developed from an already completed seminar paper or is directed toward dissertation research. A written version of that paper is later submitted to the student’s committee for formal assessment. For those students planning to go on to a Ph.D., the M.A. is awarded upon successful completion of both current course work and the “paper and presentation,” as well as demonstrated competency in one foreign language.

Students complete courses and begin work toward a Ph.D. research proposal in the third year of study. Subsequent to their third year, students defend their research proposal, conduct their dissertation research, and defend a dissertation. Competency in a second foreign language is required for the Ph.D. (statistics may be substituted where relevant).

For students taking the M.A. degree only, 24 credits of course work are required. M.A. students are asked to take only the first two semesters of “common courses.” They must also demonstrate competency in one foreign language and write an M.A. thesis.

A fuller description of the graduate program and the degree requirements is available from the department office or on-line at www.virginia.edu/anthropology.

Course Descriptions

Note: An eight in the middle or end of a course number (e.g., 708, 580, 708, 789) usually indicates a course in archaeology, a four indicates linguistic anthropology, and a five or six indicates an ethnographic or regional emphasis.

The Common Courses

The sequence of common courses includes 701, 702, and 703, a course in archæological anthropology (708 or 781) and a course in linguistic anthropology, 740. These courses are required of graduate students in Anthropology, and are not normally open to other students.

ANTH 701 - (3) (Y)

The History of Anthropological Theory

Explores the diverse intellectual roots of the discipline, showing how they converged into a unitary program in the late nineteenth century, and how this program was criticized and revised in the first half of the 20th century.

ANTH 702 - (3) (Y)

Current Anthropological Theory

Analyzes the main schools of anthropological thought since World War II, a half century during which separate English, French, and American traditions have influenced each other to produce a broad and subtle international discipline.

ANTH 703 - (3) (Y)

Anthropological Monographs

Critical reading of selected monographs that use the data and methods of each of the three subdisciplines of socio-cultural, archaeological and linguistic anthropology. Explores the relationship between theory and data through readings selected from different historical periods, theoretical perspectives, and geographical areas.

ANTH 708 - (3) (Y)

Advanced Method and Theory in Archaeology

Seminars in current methodological and theoretical issues in archaeology. In some years the common course requirement in archaeological anthropology may be fulfilled by ANTH 781.

ANTH 740 - (3) (Y)

Linguistic Anthropology

An advanced introduction to the study of language from an anthropological point of view. No prior coursework in linguistics is expected, but the course is aimed at graduate students who will use what they learn in their own anthropologically-oriented research. Topics include an introduction to such basic concepts in linguistic anthropology as language in world-view, the nature of symbolic meaning, language and nationalism, universals and particulars in language, language in history and prehistory, the ethnography of speaking, the nature of everyday conversation, and the study of poetic language. The course is required for all Anthropology graduate students. It also counts toward the Theory requirement for the M.A. in Linguistics.

Topical Courses

These courses are available for satisfying the course work and distribution requirements.

ANTH 504 - (3) (Y)

Linguistic Field Methods

Investigates the grammatical structure of non-European languages on the basis of data collected in class from a native speaker. A different language is the focus of study each year.

ANTH 507 - (3) (Y)

History of Archaeological Thought

Considers how archaeological thinking reflects, and is related to, more general ethnological theory.

ANTH 508 - (3) (Y)

Method and Theory in Archaeology

Investigates current theory, models, and research methods in anthropological archaeology.

ANTH 509 - (3) (Y)

Historical Ethnography

Prerequisite: At least one 300-level archaeology course or instructor permission.

Combines lectures on historical ethnography and archaeology with documentary research in primary sources on specific topics.

ANTH 518 - (3) SI

Labor, Capital and States in Contemporary Africa

Prerequisite: Permission of instructor.

This course examines the interface between Africa and the world by focusing on the relationship between international capital, different systems of governance, and laboring people through a close reading of ethnographic case studies.

ANTH 519 - (3) (Y)

Science and Culture

Prerequisite: Previous anthropological course work or consent of instructor.

This course explores the cultural context of science and science as a cultural production. It investigates the cultural history of science as well as its national and transnational manifestations; the relation between scientific authority and social hierarchy; and the relation between cultural and scientific categories and practices.

ANTH 520 - (3) (O)

History of Kinship Studies

Critical assessment of major theoretical approaches to the study of kinship and marriage (from the 19th century to the present) and of the central role of kinship studies in the development of anthropological theory.

ANTH 521 - (3) (E)

Reconfiguring Kinship (Studies)

Prerequisite: ANTH 520 or instructor permission.

Examines the ways in which the forms of kinship have been reconfigured in contemporary societies, and the ways in which traditional kinship studies have been reconfigured by their intersection with cultural theory, feminist theory, gender studies, postmodern theory, gay and lesbian studies, and cultural studies of science and medicine.
ANTH 522 - (3) (E)
Linguistic Anthropology
An overview of morphological theory within the generative paradigm. Covers notions of the morpheme, theories of the phonology-syntax interface (e.g., lexical phonology, prosodic morphology, optimality theory), and approaches to issues arising at the morphol-ogy-syntax interface (e.g., inflection, agreement, incorporation, compounding).

ANTH 533 - (3) (E)
Folklore and Ethnohistorical Research Methodology
Prerequisite: Graduate student standing or instructor permission. Introduction to folklore, and to folklore and ethnohistorical research methods and analysis.

ANTH 534 - (3) (E)
Ethnographies of Illness and the Body
Prerequisite: For undergraduates: ANTH 224, ANTH 360, SOC 428; instructor permission for graduate students. Focuses on illness because it is often at moments of intense ruptures in the normalcy of the body's functioning that individuals/societies reflect on the taken-for-granted assumptions about self, family community, social and political institutions, the relation between normal and pathological, the roles of healers and patients, life and death. Writing about illness and the body is a form of therapeutic action. Examines such claims and writings done by those facing bodily distress.

ANTH 535 - (3) (E)
Folk and Popular Health Systems
Surveys various medical beliefs and practices, considering the traditional health systems of several American groups, and examining in detail the input into local traditional health systems from various sources.

ANTH 536 - (3) (O)
Topics in Folklore
Seminars and classes in topics of specific interest to faculty and advanced students will be announced prior to each semester.

ANTH 539 - (3) (SI)
Topics in Symbolic Anthropology
Topics of specific interest to faculty and advanced students are announced prior to each semester.

ANTH 542 - (3) (IR)
Theories of Language
Survey of modern schools of linguistics, both American and European, discussing each approach in terms of historical and intellectual context, analytical goals, assumptions about the nature of language, and relation between theory and methodology.

ANTH 543 - (3) (IR)
African Language Structures
Prerequisite: One course in linguistics, or instructor permission. Introduces the major phonological and grammatical features of the languages of sub-Saharan Africa, with attention to issues in language classification, the use of linguistic evidence for prehistoric reconstruction, and sociolinguistic issues of relevance to Africa.

ANTH 544 - (3) (E)
Morphology
An overview of morphological theory within the generative paradigm. Covers notions of the morpheme, theories of the phonology-syntax interface (e.g., lexical phonology, prosodic morphology, optimality theory), and approaches to issues arising at the morphol-ogy-syntax interface (e.g., inflection, agreement, incorporation, compounding).

ANTH 545 - (3) (IR)
African Languages and Folklore
Analyzes the expressive use of language in Africa with emphasis on such traditional genres as folktales, epics, proverbs, riddles, etc.

ANTH 547 - (3) (Y)
Language and Identity
Explores the view that language is central in the construction, negotiation, and expression of social identities by juxtaposing and critically appraising social, theoretic, and linguisti- tic treatments of identity.

ANTH 549 - (Credit to be arranged) (IR)
Topics in Theoretical Linguistics and Linguistic Anthropology
Seminar topics announced prior to semester.

ANTH 551 - (3) (IR)
Topics in Ethnology of North America
Seminar topics announced prior to semester.

ANTH 552 - (3) (IR)
Topics in Ethnology of Latin America
Seminar topics announced prior to semester.

ANTH 553 - (3) (IR)
Topics in Ethnology of Europe
Seminar topics announced prior to semester.

ANTH 554 - (3) (IR)
Topics in Ethnology of Africa
Seminar topics announced prior to semester.

ANTH 555 - (3) (IR)
Topics in Ethnology of the Middle East
Seminar topics announced prior to semester.

ANTH 556 - (3) (IR)
Topics in Ethnology of South Asia
Seminar topics announced prior to semester.

ANTH 557 - (3) (IR)
Topics in Ethnology of East Asia
Seminar topics announced prior to semester.

ANTH 558 - (3) (IR)
Topics in Ethnology of Southeast Asia
Seminar topics announced prior to semester.

ANTH 559 - (3) (IR)
Topics in Ethnology of Melanesia
Seminar topics announced prior to semester.

ANTH 560 - (3) (IR)
Topics in Ethnology of Australia
Seminar topics announced prior to semester.

ANTH 561 - (3) (IR)
Topics in Ethnology of Oceania
Seminar topics announced prior to semester.

ANTH 565 - (3) (Y)
Creole Narratives
Prerequisite: ANTH 357 strongly recom-mended. Topics include 18th, 19th, and 20th century Caribbean intellectual life; Imperialism; Island nationalism; slavery; colonized values; race; class; and religion.

ANTH 566 - (3) (IR)
Conquest of the Americas
Explores the power and personhood specifi-cally related to the Americas. Topics include cultural frontiers; culture contact; society against the state; shamanism and colonial-ism; violence; and resistance.
ANTH 569 - (3) (IR)
Topics in Ethnology
Seminars and classes in topics of specific interest to faculty and advanced students will be announced prior to each semester.

ANTH 571 - (3) (IR)
The Interpretation of Ritual
Prerequisite: Instructor permission.
Overview of anthropology's approach to ritual during a century of diverse speculation on the nature and origins of religions, with discussion of such figures as James Frazer, A.M. Hocart, Claude Levi-Strauss, Max Gluckman, and Victor Turner. Focuses on topics announced prior to each semester relating those issues to the whole tradition of interpretation of ritual in anthropology. Topics have included the nature of sacrifice, the expression of hierarchy in ritual, and the compatibility of historical approaches with ritual analysis.

ANTH 572 - (3) (Y)
Ritual Experience and Healing
Studies the ritual of different cultures, using not only anthropological terms of analysis but also examining the viewpoint of the cultures themselves. Examines changing attitudes in the study of ritual, along with the problem of the wide variability of religious expression. Explores new directions in the anthropology of experience in the light of recent work healing and spirit possession.

ANTH 575 - (3) (Y)
Buddhism, Politics and Power
Discusses the political culture of Buddhist societies of South and Southeast Asia.

ANTH 580 - (Credit to be arranged) (SI)
Archaeology Laboratory
Field and laboratory training in the collection, processing, and analysis of archaeological material. Because subject matter varies from semester to semester, course may be repeated.

ANTH 581 - (3) (SI)
Archaeology of the Eastern United States
Studies the prehistory of the eastern woodlands region, emphasizing cultural development and change. Discussions of archaeological field techniques and methods, and examination of sites in the vicinity of the University.

ANTH 582 - (3) (SI)
Archaeology of the Southwestern United States
Studies the prehistory of the American southwest, emphasizing cultural development, field techniques, and particular sites.

ANTH 583 - (3) (SI)
Archaeology of the Ancient Middle East
Reviews and analyzes archaeological data used in the reconstruction of ancient Middle Eastern societies.

ANTH 584 - (3) (SI)
Archaeology of Complex Societies
Examines archaeological approaches to the study of complex societies using case studies from both the Old and New Worlds.

ANTH 585 - (3) (SI)
Archaeological Approaches to Economy and Exchange
A review of archaeological approaches to systems of production, exchange, and consumption. Discusses data from both the Old and New Worlds.

ANTH 586 - (3) (SI)
Ceramics, Style and Society
Critical review of the theoretical and methodological issues involved in the archaeological study of ceramics. Includes ceramic production and exchange, and the uses of ceramics in the study of social interactions.

ANTH 587 - (3) (SI)
Archaeozoology
Laboratory training in techniques and methods used in analyzing animal bone recovered from archaeological sites. Includes field collection, data analysis, and the use of zooarchaeological material in reconstructing economic and social systems.

ANTH 588 - (3) (SI)
Analytical Methods in Archaeology
Prerequisite: Introductory statistics.
Examines the quantitative analytical techniques used in archaeology. Includes seriation, regression analysis, measures of diversity, and classification.

ANTH 589 - (3) (Y)
Selected Topics in Archaeology
Seminar topics announced prior to semester.

ANTH 590 - (3) (E)
Issues in Archaeological Analysis
Prerequisite: ANTH 588 or a basic statistics course.
Archaeological databases often violate many of the assumptions made in application of parametric statistics. Reviews the unique characteristics of those databases and explores alternative analytical methods. Emphasizes case studies.

ANTH 591 - (3) (IR)
Gender in Archaeology
Explores the range of case studies and theoretical literature associated with the emergence of gender as a framework for research in archaeology.

ANTH 592 - (3) (SI)
Archaeology of Colonial Expansions
Prerequisite: For undergraduates, ANTH 401 senior seminar or instructor permission. Exploration of the archaeology of frontiers, expansions and colonization, focusing on European expansion into Africa and the Americas while using other archaeologically-known examples (e.g., Roman, Bantu) as comparative studies.

ANTH 593 - (3) (SI)
Archaeology of Symbolism
Prerequisite: Undergraduates should obtain instructor permission.
Examines the ways in which archaeologists have studied symbolism in ancient societies. Some key topics include the analyses of cultural concepts of space and time, symbolism of material culture, and the construction of social identity.

ANTH 704 - (3) (Y)
Ethnographic Research Design and Methods
Prerequisite: Second year graduate in anthropology or instructor permission.
Seminar on ethnographic methods and research design in the qualitative tradition. Surveys the literature on ethnographic methods and explores relations among theory, research design, and appropriate methodologies. Students participate in methodological exercises and design a summer pilot research project.

ANTH 705 - (3) (Y)
Ethnographic Data Analysis and Writing
Prerequisite: ANTH 704 or instructor permission.
A seminar and writing workshop exploring methods of qualitative data analysis, styles of ethnographic description, and problems of research design. Students apply these techniques to the results of field research.

ANTH 706 - (3) (Y)
Workshop in Project Design
Prerequisite: ANTH 705 or instructor permission.
A workshop for graduates preparing dissertation proposals and writing grant applications. Each student prepares several drafts of a proposal, revising it at each stage in response to the criticisms of classmates and the instructor.

ANTH 711 - (3) (Y)
Paper and Presentation
Available for graduate students in their fourth semester, as they prepare to fulfill their paper and presentation requirement.

ANTH 715 - (3) (E)
Boasian Anthropology
Prerequisite: Instructor permission.
Studies the works of Franz Boas and his students (Kroeber, Lowie, Sapir, Benedict, Mead, Radin, Whorf) in historical perspective; considers their relevance to contemporary culture theory.

ANTH 716 - (3) (IR)
Culture Theory in American Anthropology
A critical assessment of the development of culture theory in American anthropology over the last half of the 20th century.

ANTH 717 - (3) (Y)
Visual Anthropology
The study of visual means of representation in Anthropology. Topics include ethnographic film and the documentary tradition of still photography.

ANTH 719 - (3) (Y)
Marriage, Mortality, Fertility
Explores the ways that culturally formed systems of values and family organization affect population processes in a variety of cultures. Readings are drawn from comparative anthropology and historical demography. Cross-listed as ANTH 329.
ANTH 720 - (3) (Y)
Marriage, Gender, Political Economy
Cross-cultural comparison of marriage and domestic groups, analyzed as a point of intersection between cultural conceptions of gender and a larger political economy.

ANTH 725 - (3) (Y)
Anthropology of the Third World
Analyzes the situation of peoples in the Third World in the circumstances of the contemporary world economy.

ANTH 727 - (3) (O)
Political Anthropology
Surveys major theoretical approaches in political anthropology including evolutionism, structural functionalism, transactionism, and ideological approaches.

ANTH 729 - (3) (SI)
Nationalism and the Politics of Culture
Analyzes the ways in which a spirit of national or ethnic solidarity is mobilized and utilized.

ANTH 732 - (3) (SI)
American Folklore
Topics include problems of definition, origin, collection, and analysis of the main genres of folklore in America, both narratives and songs. Cross-listed as ENAM 885.

ANTH 733 - (3) (E)
Ethnohistory: Research and Methods
Introduces ethnohistory, considering various sources and methods for conducting ethnohistorical research, and requiring a practical application of these to a historical case study in Albemarle County. Discusses concepts of group identity and culture, or "ethnos," and the nexus between history and anthropology.

ANTH 735 - (3) (O)
Life History and Oral History
Prerequisite: Instructor permission.
Topics include the politics of cultural representation in history, anthropology and fine arts museums; and the museum as a bureaucratic organization, educational institution, and nonprofit corporation.

ANTH 736 - (3) (O)
The Museum in Modern Culture
An in-depth study of the life history and its use as a sociocultural document, and of oral history methodology. Students read and critique various works, both historical and contemporary, that use oral history or present what various scholars have termed personal narrative, personal experience story, life story, life history, conversational narrative, or negotiated biography. Practical experience is gained in conducting interviews and writing life histories.

ANTH 737 - (3) (Y)
Power and the Body
Study of the cultural representations and interpretations of the body in society.

ANTH 741 - (3) (SI)
Topics in Sociolinguistics
Analyzes particular aspects of the social use of language. Topics vary from year to year.

ANTH 745 - (3) (O)
Native American Languages
Surveys the classification and typological characteristics of Native American languages and the history of their study, with intensive work on one language by each student. Some linguistics background is helpful.

ANTH 748 - (3) (O)
Language and Prehistory
This course covers the basic principles of diachronic linguistics—the study of how languages change over time—and the uses of linguistic data in the reconstruction of prehistory. Considered is the use of linguistic evidence in tracing prehistoric population movements in demonstrating contact among prehistoric groups and in the reconstruction of daily life. To the extent that the literature permits, examples and case studies will be drawn from the Mayan language area of Central America, and will include discussion of the pre-Columbian Mayan writing system and its ongoing decipherment. Fulfills the comparative-historical requirement for Linguistics graduate students.

ANTH 751 - (3) (E)
Native American Women
Prerequisite: Background in anthropology.
Explores the lives of Native American women through reading and discussing biographies, autobiographies, ethnographies, and articles addressing specific questions of the roles and status of women in Native American societies before and after contact with Europeans.

ANTH 753 - (3) (Y)
Anthropology of Eastern Europe
Prerequisite: one course in anthropology or permission of the instructor.
This course explores Eastern European societies through an examination of the practices of everyday social life. Topics include the changing cultural meanings of work and consumption, the nature of property rights and relations, family and gender, ethnicity and nationalism, religion and ritual.

ANTH 756 - (3) (O)
Critiques of Representation
Examines post-modern critiques of traditional modes of representation in anthropology, particularly by symbolic anthropologists, and critically assesses their impact on the conduct of ethnographic research and on modes of ethnographic writing.

ANTH 761 - (3) (SI)
Hindu World-view
Explores the indigenous philosophies of Hindu South Asia, as revealed in ritual, myth and text.

ANTH 763 - (3) (Y)
Social Structure of China
Analyzes various features of traditional Chinese social organization as it existed in the late imperial period. Includes the late imperial state, Chinese family and marriage; lineages; ancestor worship; popular religion; village social structure; regional systems; and rebellion.

ANTH 781 - (3) (E)
Archaeology I
Analyzes the transformation of societies based on a mobile, hunting-gathering adaptation to an agricultural economy with permanent villages and emerging political complexity. Models of the origin of agriculture and sedentism are reviewed and evaluated.

ANTH 782 - (3) (E)
Archaeology II
Examines the development of social ranking, operation of complex societies, and formation of the state. Case-studies from Old and New Worlds provide basis for evaluating classic and recent constructs proposed by anthropologists for the organization and collapse of chiefly society, theories on state formation, urbanism, and early empires.

ANTH 783 - (3) (Y)
Non-Topical Research, Preparation for Research
Available for graduate students who are currently engaged as teaching assistants, this seminar aims to foster the effective design and conduct of classes, particularly sections.

ANTH 785 - (3) (SI)
Independent Study and Research
Non-Topical Research, Preparation for Research
Available for graduate students who are currently engaged as teaching assistants, this seminar aims to foster the effective design and conduct of classes, particularly sections.

ANTH 841 - (3) (SI)
Seminar in the Teaching of Anthropology
Available for graduate students who are currently engaged as teaching assistants, this seminar aims to foster the effective design and conduct of classes, particularly sections.

ANTH 897 - (3-12) (SI)
Non-Topical Research, Preparation for Research
For master's research, taken before a thesis director has been selected.
ANTH 898 - (3-12) (SI)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

ANTH 901, 902 - (Credit to be arranged) (SI)
Directed Readings

ANTH 905, 906 - (Credit to be arranged) (SI)
Research Practicum

ANTH 997 - (3-12) (SI)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

ANTH 999 - (3-12) (SI)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

McIntire Department of Art
Rugby Faculty Apartments, 203 Rugby Road
University of Virginia
P.O. Box 400130
Charlottesville, VA 22904-4130
(434) 924-6123
artdept@virginia.edu
www.virginia.edu/finearts/ArtWelcome.html

Degree Requirements
In addition to the entrance requirements of the Graduate School of Arts and Sciences, admission to graduate study in the history of art normally requires an average of B+ or better in an undergraduate major in the field and a command of either French, Italian, or German. Outstanding students who have majored in another field may be considered but, if admitted, should expect to take a certain number of basic undergraduate courses for which no degree credit will be granted.

Master of Arts Candidates for the degree of Master of Arts in the History of Art are required to pass a minimum of 30 credits of courses at the 500 level or above and a written comprehensive examination in two major fields. A master’s essay is also required. Normally this program can be completed in four semesters.

Students who focus on Western art are expected to take at least one course in each of the five major areas: Ancient, Medieval, Renaissance, Modern, and Non-Western art, as well as ARTH 501, Library Methodology, and ARTH 801, Theory and Interpretation. Students who focus on Asian art are expected to take courses in both South and East Asian art, at least one course in three of the major areas of Western art, as well as ARTH 501, Library Methodology and ARTH 801, Theory and Interpretation. The remaining courses may be spread among the student’s two major fields, or other fields as they and their advisors deem useful.

For students of Western art, reading knowledge of German and either French or Italian is required. For students in Asian studies knowledge of German or French is required. Proficiency in at least one of these languages must be demonstrated during the first semester of study. Proficiency in the second language must be demonstrated early in the second year of study. The student must satisfy this requirement by passing an examination administered by the department.

Doctor of Philosophy To enter the doctoral program, the student must obtain the permission of the faculty. For students who wish to continue, application is made as work for the M.A. is completed, usually in the second semester of the second year. In exceptional cases, the faculty will review a student’s work after the first year of graduate study and give that student permission to enter the Ph.D. program after completing M.A. course work. Such students do not complete the comprehensive examination and the master’s essay and do not receive a master’s degree. Doctoral candidates are required to complete successfully a minimum of 24 credits of courses at the 500 level or above, beyond those required for the master’s degree. They must also pass a written examination in the major field, write a dissertation, and, after the dissertation has been accepted, defend it in an oral examination.

Each student’s program is to be approved by the Departmental Director of Graduate Studies. A member of the graduate faculty in the student’s field of specialization must approve a dissertation proposal outlining the subject and scope of the dissertation and a research plan. When the proposal has been approved by the advisor and members of a dissertation committee chosen by the student in consultation with the advisor, it will be circulated among the faculty, who may offer comments or suggestions. In addition to the languages required for the M.A. degree, students may be required to have a reading knowledge of other languages necessary for work in their major field.

Program in Classical Art and Archaeology
In addition to its regular degree programs, the Department of Art sponsors an interdisciplinary program in classical art and archaeology, leading to the degrees of M.A. and Ph.D. The program encourages the student to acquire a broad understanding of ancient culture. Reading knowledge of Greek and Latin is encouraged; credit is given for courses in ancient studies offered by other departments. Course work outside the Department of Art may lead to the choice of a special field in ancient history, religion, philosophy, or literature. In order that the student be acquainted with the survival and transformation of ancient art in the post-Classical period, course work in early medieval art is also required. At an appropriate stage in their graduate study, students in the program are encouraged to do field work in archaeology at an ancient site.

Although the program is flexible, a course in theory and methodology, such as ARTH 801, is required. The curriculum is determined by students’ preparation, interests, and needs, with about two-thirds of the ten courses needed for the M.A. concentrated in ancient study. Students prepare for the Comprehensive Examination in the two fields of ancient and early medieval art. Language requirements in French and German are met before students take the Comprehensive Examination.

Course Descriptions
Certain graduate courses are given in alternate years, or once every three years, or are temporarily suspended. New courses may be added after the publication date of this catalog. A more current list of course offerings may be obtained by writing to the secretary of the department.

Note: Instructor permission is a prerequisite for all 500-level courses.

ARTH 516 - (3) (IR)
Roman Architecture
Prerequisite: Instructor permission.
Instructor permission.
Studies Roman architecture in Italy and the Roman Empire from the Republic to Constantine, emphasizing developments in the city of Rome.

ARTH 518 - (3) (IR)
Roman Imperial Art and Architecture I
Prerequisite: Instructor permission.
Instructor permission.
Studies Roman sculpture, painting, architecture and minor arts from Augustus to Trajan.

ARTH 519 - (3) (IR)
Roman Imperial Art and Architecture II
Prerequisite: Instructor permission.
Instructor permission.
Studies Roman sculpture, mosaics, architecture and minor arts from Trajan to Constantine.

ARTH 522 - (3) (IR)
Byzantine Art
Prerequisite: Instructor permission.
Studies the art of Byzantium and its cultural dependencies from its roots in the late Antique period to the last flowering under the Palaeologan dynasty.

ARTH 533 - (3) (IR)
Italian Fifteenth Century Painting I
Prerequisite: Instructor permission.
Studies the major and minor masters of the Quattrocento in Florence, Siena, Central Italy, Venice, and North Italy.

ARTH 536 - (3) (IR)
Italian Sixteenth-Century Painting
Studies the High Renaissance, Mannerism, the Maniera, and related movements in Cinquecento painting.
ARTH 537 - (3) (IR)
Italian Renaissance Sculpture I
Prerequisite: Instructor permission.
Studies the major developments in Italian sculpture from the late Dugento through the early Quattrocento.

ARTH 547 - (3) (IR)
Dutch Painting in the Golden Age
Surveys the major artists and schools of the United Provinces from about 1580-1680, including Rembrandt, Frans Hals, Vermeer, and Jacob van Ruisdael, seen in the context of Dutch culture and history. Emphasizes the iconographic method of interpreting daily-life genre and landscape, the role of theory in Dutch art, and the character of Dutch realism.

ARTH 561 - (3) (IR)
Approaches to American Art
Introduces historiography and methodology of American art history from earliest discussions to the present, through an analysis of one particular mode (e.g., portraiture, landscape, genre) over time.

ARTH 562 - (3) (IR)
Representations of Race in American Art
Examines the depiction of Asian, Blacks, Indians, and Latinos in American art from colonial times to the present, in order to identify and describe some of the ways in which visual images have functioned in the construction and reinforcement of racial mythologies.

ARTH 583 - (3) (IR)
African Art
Surveys Africa’s chief forms of visual art from prehistoric times to the present.

ARHT 590 - (3) (Y)
Museum Studies
Prerequisite: 9-12 credits in art history or instructor permission.
A lecture course on the nature of public art collections, how they have been formed, and the role they play in society. Examines the concept of connoisseurship and its role in collecting art for museums.

ARHT 591, 592 - (3) (S)
Advanced Readings in the History of Art

ARHT 713, 714 - (3) (S)
Research Problems in Ancient Art
Reading and research on problems in Greek, Etruscan, and Roman art.

ARHT 721, 722 - (3) (S)
Research Problems in Medieval Art
Reading and research on problems in medieval art and its social background.

ARHT 731, 732, 733 - (3) (S)
Research Problems in Italian Art
Reading and research on problems in Italian art and its social background.

ARHT 736 - (3) (S)
Research Problems in Northern Renaissance Art
Reading and research on problems in Northern European art in the fifteenth and sixteenth centuries.

ARHT 741, 742 - (3) (S)
Research Problems in Baroque Art
Reading and research on problems in the art of the seventeenth century in Western Europe.

ARHT 751 - (3) (S)
Research Problems in Eighteenth-Century Art
Reading and research on problems in the art of the eighteenth century.

ARHT 752, 753 - (3) (S)
Research Problems in Nineteenth-Century Art
Reading and research on problems in nineteenth-century art.

ARHT 756 - (3) (S)
Research Problems in Twentieth-Century Art
Reading and research on problems in twentieth-century art.

ARHT 761 - (3) (S)
Research Problems in American Art
Reading and research on problems in American art.

ARHT 764 - (3) (S)
Research Problems in African American Art
Reading and research on problems in African American art.

ARHT 767 - (3) (S)
Research Problems in Contemporary Art
Reading and research on problem in contemporary art.

ARHT 771 - (3) (S)
Research Problems in East Asian Art
Reading and research on problems in East Asian art.

ARHT 775 - (3) (S)
Research Problems in South Asian Art
Reading and research on problems in South Asian art.

ARHT 780 - (3) (S)
Research Problems in Non-Western Art
Reading and research on problems in non-Western art.

ARHT 801 - (3) (Y)
Theory and Interpretation in the Visual Arts
Examines the literature of art theory with a view to defining the most important alternatives available to art historical writing today. Reviews the work of “critical” historians of art including Wolfflin, Riegl and Panofsky, and more recent attempts to develop phenomenological, semantic, Marxist, and feminist positions.

ARHT 822 - (3) (IR)
Art in the Age of Justinian
Studies the art of the Byzantine Empire of the sixth century, the personal role of Justinian, the impact of theological controversies and political realities, and the artistic legacy.

ARHT 827 - (3) (IR)
English Art from the Twelfth through the Fourteenth Centuries
Studies in church building and decoration, and manuscript illumination.

ARHT 833 - (3) (IR)
The Formation of Renaissance Style in Florence
Studies the new art of the early Quattrocento in sculpture, architecture, and painting; its sources, protagonists, principles, and historical background.

ARHT 837 - (3) (IR)
Studies in Renaissance Art and Literature
Studies of historical and stylistic relationships between artists and writers of the sixteenth century. The works of Ariosto, Dossi, Castiglione, Raphael, and others will be considered in an attempt to define specific patterns of sixteenth-century intellectual and cultural history.

ARHT 838 - (3) (IR)
Michelangelo
Studies the development of Michelangelo’s style in sculpture, painting, drawing, and architecture including problems of attribution, chronology, and interpretation.

ARHT 856 - (3) (IR)
Problems in Twentieth-Century Art
Investigates selected problems and periods in the art of this century.

ARHT 880 - (3) (IR)
Modern Poetry and the Visual Arts
Investigates the meaning of painting, sculpture, and architecture to poets of the 19th and 20th centuries. Discusses their poetry in relation to the aesthetics of visual art, art history, and art criticism. Cross-listed as ENSP 880.

ARHT 890 - (3) (IR)
Advanced Museum Studies or Studies in Museum Exhibition and Interpretation
Artificial study and related scholarship in preparation for museum exhibition and analysis of strategies of past and present exhibition interpretation.

ARHT 895 - (3-12) (S)
Special Reading Problems in the History of Art

ARHT 897 - (3-12) (Y)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

ARHT 898 - (3-12) (Y)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

ARHT 913, 914 - (3) (IR)
Seminar in Greek Art
Investigates problems in Greek sculpture and painting.
ARTH 917, 918 - (3) (IR)
Seminar in Roman Art
Investigates problems in Roman art.

ARTH 921 - (3) (IR)
Seminar in Byzantine Art
Investigates problems in the art of the Byzantine Empire from the 6th to the 15th centuries.

ARTH 924 - (3) (IR)
Seminar in Romanesque Art
Investigates problems in the art of Western Europe in the 11th and 12th centuries.

ARTH 929 - (3) (IR)
Seminar in Gothic Art
Investigates problems in the art of the 12th, 13th, and 14th centuries.

ARTH 931 - (3) (IR)
Seminar in Italian Renaissance Art
Investigates problems in Italian art of the 13th through the 16th centuries.

ARTH 935 - (3) (IR)
Seminar in Italian Renaissance Painting
Investigates problems in Italian painting of the 15th and 16th centuries.

ARTH 936 - (3) (IR)
Seminar in Northern Renaissance Art
Investigates problems in the art of the Netherlands and Germany in the 15th and 16th centuries.

ARTH 947 - (3) (IR)
Seminar in Northern Baroque Art
Investigates problems in the art of the Netherlands during the 17th century.

ARTH 951 - (3) (IR)
Seminar in Eighteenth-Century Art
Investigates problems in 18th century art.

ARTH 952 - (3) (IR)
Seminar in Neoclassic Art
Investigates problems in neoclassic art.

ARTH 953 - (3) (IR)
Seminar in Romantic Art
Investigates problems in the art of the later 18th and first half of the 19th century in Europe.

ARTH 955 - (3) (IR)
Seminar in Nineteenth-Century Art
Investigates problems in the art of the 19th century in Europe.

ARTH 956 - (3) (IR)
Seminar in Modern Art
Investigates problems in the art of the 19th and 20th centuries.

ARTH 961 - (3) (IR)
Seminar in American Art
Investigates problems in American art.

ARTH 964 - (3) (IR)
Seminar in African American Art
Investigates problems in 19th- and 20th-century art by Americans of African descent.

ARTH 967 - (3) (IR)
Seminar in Contemporary Art
Investigates the relationship between a current problem in contemporary art (e.g., censorship, gender representation, aesthetic pluralism, or multiculturalism) and current theories about the socially constructed nature of art production/consumption.

ARTH 971 - (3) (IR)
Seminar in East Asian Art

ARTH 975 - (3) (IR)
Seminar in South Asian Art

ARTH 995 - (3-12) (S)
Supervised Research

ARTH 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

ARTH 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Asian and Middle Eastern Languages and Cultures
B27 Cabell Hall
University of Virginia
P.O. Box 400781
Charlottesville, VA 22904-4781
(434) 982-2304 Fax: (434) 924-6977
amelc@virginia.edu
www.virginia.edu/amelc

Course Descriptions

Independent Research

AMEL 801, 802 - (1-3) (S)
Independent Research: Topics in Asian and Middle Eastern Languages and Cultures
Prerequisite: Instructor permission.
A course of specialized language and/or literature study intended to meet the specific needs of advanced students. This course may take the form of directed readings, or of specialized training and work in cognate languages not generally taught.

AMTR 511 - (3) (IR)
Women and Middle-Eastern Literatures
Explores some of the basic issues of women’s identity in Middle Eastern literature. In a variety of readings (poetry, short-story, novel, and autobiography) by men and women, it explores both the image and presence of women in a rich and too-often neglected literature. Taught in English.

Arabic

ARAB 501, 502 - (3) (Y)
Readings in Literary Arabic
Prerequisite: ARAB 202 or equivalent, or instructor permission.
Emphasizes reading of modern texts for oral-aural practice, as well as writing.

ARAB 523 - (3) (SI)
Arabic Conversation and Composition
Prerequisite: ARAB 302 or instructor permission.
Emphasizes development of writing and speaking skills, with special attention to grammar, syntax, vocabulary, and the organization and style of different genres.

ARAB 524 - (3) (SI)
Advanced Arabic Conversation and Composition
Prerequisite: ARAB 323 or equivalent, or instructor permission.
Develops oral and written proficiency to an advanced level of fluency, with emphasis on speaking and writing.

ARAB 528 - (3) (SI)
The History of the Arabic Language
Prerequisite: At least one year of Arabic or Hebrew, and/or historical linguistics.
Study of the history of Arabic and its development up to present days. Studies relation of Arabic to other languages that come in contact with it either through genetic relationship, such as Hebrew and Aramaic, or through conquest, such as Persian, Coptic, Berber, and others. Emphasizes external and internal factors of linguistic change.

ARAB 531 - (3) (SS)
Introduction to the Arab World and Its Languages
A general survey of the linguistic, geographical, historical, social, religious, cultural, and artistic aspects of the modern Arab world. Attention given to the Arabic language, family, gender relations, the Arab experience in the U.S., Arab American relations, the role of the past and of social change, and Arab art and music.

ARAB 533 - (3) (Y)
Arabic of the Quran and Hadith I
Prerequisite: ARAB 202 or higher, or permission of instructor.
Studies the language of the Quran and its exegetical and the Hadith.

ARAB 534 - (3) (Y)
Arabic of the Quran and Hadith II
Prerequisite: ARAB 333 or permission of instructor.
Studies the language of the Quran, its exegesis, and the Hadith.

ARAB 583 - (3) (Y)
Topics in Arabic Prose
Prerequisite: ARAB 302/502 or equivalent, or instructor permission.
Emphasis on reading modern Arabic prose, and writing descriptive and narrative short essays.

ARAB 584 - (3) (Y)
Topics in Arabic Prose
Prerequisite: ARAB 583 or instructor permission.
Exposure to selected reading material in modern Arabic prose, and writing of short essays, summaries, and descriptive pieces in Arabic.

ARAB 585 - (3) (Y)
Media Arabic
Prerequisite: ARAB 583 and 584, or 505 and 506, or instructor permission.
Examines electronic (television and radio) and print (newspapers, magazines, periodical publications) Arabic.
ARAB 586 - (3) (Y)
Nineteenth Century Arabic Prose
Prerequisite: ARAB 583 and 584, or instructor permission.
Examines Arabic writing in the 19th century, a period of renaissance in the Arabic language.

ARAB 701 - (3) (Y)
Modern Arabic Fiction (in Arabic)
Prerequisite: ARAB 583 and 584, or instructor permission.
Studies the emergence of fiction as a genre in Arabic writing at the end of the 19th century and beginning of the 20th century, the development of this genre, its maturity, and its contribution to the creative process of fiction writing in the world.

ARAB 702 - (3) (Y)
Modern Arabic Drama (in Arabic)
Prerequisite: ARAB 583 and 584, or instructor permission.
Studies the emergence of drama as a genre in Arabic writing at the end of the 19th century and beginning of the 20th century, the development of this genre, its maturity, and its contribution to the creative process of drama writing in the world.

ARAB 703 - (3) (Y)
Modern Arabic Poetry (in Arabic)
Prerequisite: ARAB 583 and 584, or instructor permission.
Studies the development of Arabic Poetry in the 19th and 20th centuries, leading to the emergence of modern Arabic poetry in the fifth decade of the 20th century.

ARAB 783 - (3) (Y)
Readings in Arabic/Islamic Text
Prerequisite: ARAB 583 and 584, or instructor permission.
Close reading, with emphasis on linguistic and textual analysis, of Arabic texts selected from the historical, geographical, grammatical, philological, or religious traditions from both the classical and modern period, determined by interest of students or instructor.

ARAB 801, 802 - (1-3) (IR)
Independent Study in Arabic

ARTR 529 - (3) (Y)
Modern Arabic Literature in Translation
Introduces the development and themes of modern Arabic literature (poetry, short stories, novels and plays). No knowledge of Arabic is required. Taught in English.

Chinese

CHIN 501, 502 - (3) (Y)
Readings in Modern Chinese Literature
Prerequisite: CHIN 202 or equivalent, or instructor permission.
Studies modern Chinese at the advanced level. Includes listening comprehension, reading and discussion in Chinese of various aspects of Chinese culture, society, and literature, using radio broadcasts and selections from newspapers, recent essays, short stories, etc.

CHIN 523 - (3) (Y)
Chinese Conversation and Composition (in Chinese)
Prerequisite: CHIN 502 or equivalent, or instructor permission.
Development of writing and speaking skills at a higher level than CHIN 502.

CHIN 524 - (3) (Y)
Advanced Chinese Conversation and Composition (in Chinese)
Prerequisite: CHIN 523 or equivalent, or instructor permission.
Further develops writing and speaking skills to an advanced level.

CHIN 528 - (3) (Y)
Prerequisite: CHIN 323, 523 or equivalent, or instructor permission.
Examines the evolution of the spoken and written language, diachronically and synchronically, from syntactic, phonological, lexical, and graphic perspectives.

CHIN 550 - (1-3) (SS)
Introduction to Chinese History, Culture and Society
An integral part of the UVA summer Chinese language program in Shanghai, this course combines lectures and guest presentations with field trips, using the resources specifically available in Shanghai and other parts of China to offer an introduction to China’s long history, splendid culture, and dynamic and changing society. Taught in English.

CHIN 581 - (3) (Y)
Media Chinese I
Prerequisite: CHIN 502 or equivalent, or instructor permission.
Studies electronic and print media in Chinese, emphasizing current events as reported in the Chinese speaking world, to further develop oral and written proficiency.

CHIN 582 - (3) (Y)
Media Chinese II
Prerequisite: CHIN 581 or equivalent, or instructor permission.
A continuation of CHIN 581. Studies the electronic and print media in Chinese with special emphasis on current events as reported in the Chinese speaking world.

CHIN 583, 584 - (3) (Y)
Introduction to Classical Chinese
Prerequisite: for CHIN 584, CHIN 583 or equivalent, or instructor permission.
Introduces the grammar and structure of classical Chinese.

CHIN 585, 586 - (3) (Y)
Classical Chinese Literature
Prerequisite: CHIN 583, 584, or equivalent.
Advanced readings in classical Chinese.

CHIN 701 - (3) (Y)
Advanced Readings in Modern Chinese
Prerequisite: CHIN 302, 502, or instructor permission.
The goal of this course is to help students understand journalistic essays through systematic study of sentence patterns and formal writing styles.

CHIN 702 - (3) (Y)
Advanced Readings in Modern Chinese
Prerequisite: CHIN 701 or instructor permission.
Students will earn to read or understand various styles of modern Chinese, including essays, documentaries, prose fiction, and movies.

CHIN 703 - (3) (Y)
Modern Chinese Poetry
Prerequisite: CHIN 583, 584 or equivalent, or instructor permission.
Studies the development of modern poetry as a genre in Chinese at the beginning of the 20th century, the influences on its development, its maturity, and its contribution to the creative process of poetry writing in the world.

CHIN 704 - (3) (Y)
Traditional Chinese Poetry (in Chinese)
Prerequisite: CHIN 583, 584 or equivalent, or instructor permission.
Studies the development of poetry as a genre in Chinese up to the beginning of the 20th century, the influences on its development, its maturity, and its contribution to the creative process of poetry writing in the world.

CHIN 705 - (3) (Y)
Classical Chinese Prose
Prerequisite: CHIN 583, 584 or equivalent, or instructor permission.
Introduces classical Chinese prose from the sixth century B.C. to the third century A.D.

CHIN 706 - (3) (Y)
Classical Chinese Poetry
Prerequisite: CHIN 583, 584 or equivalent, or instructor permission.
Introduces classical Chinese poetry.

CHIN 783 - (3) (Y)
Readings in Confucian Texts
Prerequisite: CHIN 583, 584 or equivalent, or instructor permission.
Introduces a broad range of Confucian texts.

CHIN 801, 802 - (1-3) (IR)
Independent Study in Chinese

Hindi

HIND 501, 502 - (3) (Y)
Advanced Hindi
Prerequisite: HIND 202 or equivalent, or instructor permission.
Readings are drawn from areas of student interest and include readings from various disciplines. Restricted to area studies majors and minors.

HIND 801, 802 - (1-3) (IR)
Independent Study in Hindi
Restricted to area studies majors and minors.

Japanese

JAPN 501, 502 - (3) (Y)
Third Year Japanese
Prerequisite: JAPN 202 or equivalent, or instructor permission.
Emphasizes comprehension and active reproduction of modern Japanese beyond the basic patterns of speech and writing. Various topics
on current Japanese cultures and society are introduced.

JAPN 593, 594 - (3) (Y)
Advanced Readings on Society and Culture I and II
Prerequisite: JAPN 481, 482, 483, or instructor permission.
Advanced training in modern Japanese language. Students read, interpret, and discuss books written by Japanese authors for a general Japanese audience on such subjects as the cultural differences between U.S. and Japan, economics, education, journalism and politics.

JAPN 701, 702 - (3) (Y)
Reading Japanese I and II: Advanced Topics
Designed for graduate students who need to fulfill Japanese language competency.

JAPN 801, 802 - (1-3) (IR)
Independent Study in Japanese

JPTR 521 - (3) (Y)
The Tale of Genji, the World's First Psychological Novel: Court Romance
Introduction to the elegant world of classical Japanese literary tradition represented by one of the world's masterpieces. The Tale of Genji (1010 A.D.) written by Lady Murasaki, examines the courtship ritual, the marriage institution, the gendering of sexuality and desire, and the aesthetics of mono no aware.

JPTR 522 - (3) (Y)
The Modern Japanese Canon
Introduction to the modern Japanese canon (1890's to the present). Writers studied include Natsume Soseki, the first modern writer to delve into the human psyche; Mori Ogai, the surgeon-turned-writer; Ryunosuke Akutagawa, the consummate writer of short stories; Shiga Naoya, the "god" of "I-Novel" (the praised one), and Ma'bud (the worshiped one) in classical verse, as well as the use of allegory and similar devices in both prose and poetry. Taught in English.

JPTR 535 - (3) (IR)
Spirits, Romance, and Political Intrigue: An Introduction to Classical Japanese Literature
This course introduces the literary arts of Japan's medieval (1200-1600) and early modern (1600-1868) periods.

JPTR 581 - (3) (Y)
Classical Japanese Women Writers
Prerequisite: JPTR 521 or instructor permission.
Examines the courtship ritual, the marriage institution, the gendering of sexuality and desire, and the aesthetics of mono no aware.

JPTR 582 - (3) (Y)
Modern Japanese Women Writers
Prerequisite: JPTR 522 or equivalent, or instructor permission.
Examines the courtship ritual, the marriage institution, the gendering of sexuality and desire, and the aesthetics of mono no aware.

JPTR 583 - (3) (Y)
Psychological Novel: Court Romance
Prerequisite: JPTR 521 or equivalent, or instructor permission.
Examines the courtship ritual, the marriage institution, the gendering of sexuality and desire, and the aesthetics of mono no aware.

JPTR 584 - (3) (Y)
The Tale of Genji
Prerequisite: JPTR 521 or equivalent, or instructor permission.
Examines the courtship ritual, the marriage institution, the gendering of sexuality and desire, and the aesthetics of mono no aware.

JPTR 585 - (3) (IR)
Independent Study in Persian

PERS 501 - (3) (S)
Readings in Modern Persian Poetry
Prerequisite: PERS 202 or equivalent, or instructor permission.
Examines the works of major and some minor poets of the 20th century. The form and content of "New Poetry" is discussed as distinguished features of 20th-century Persian poetry in contrast with those of classical Persian poetry. Emphasizes the themes of modern poetry as reflections of Iranian society.

PERS 502 - (3) (S)
Readings in Modern Persian Prose Fiction
Prerequisite: PERS 202 or equivalent, or instructor permission.
Examines the works of this century's major writers, focusing on the development of modern Persian fiction as it reflects a changing society. Improves Persian reading ability and familiarity with Iran, its people, and its culture.

PERS 503 - (3) (IR)
Selections from the Ramayana of Valmiki
Prerequisite: SANS 502.
A second-year course focusing on developing reading fluency in Sanskrit. Selections are chosen to reinforce students' knowledge of grammar from SANS 502, to expand vocabulary and to introduce the Ramayana, one of ancient India's major epics.

PERS 504 - (3) (IR)
The Bhagavadgita
Prerequisite: SANS 502 and graduate standing.
A second-year course focusing on developing reading fluency in Sanskrit. Selections are chosen to reinforce students' knowledge of grammar from SANS 502, to expand vocabulary and to introduce the Bhagavadgita, a major religious text of ancient India.

PERS 505 - (3) (IR)
Selections from the Kathasaritsagara
Prerequisite: SANS 502.
A second-year course focusing on developing reading fluency in Sanskrit. Selections are chosen to reinforce students' knowledge of grammar from SANS 502, to expand vocabulary and to introduce the Kathasaritsagara, one of ancient India's most important collections of story literature in Sanskrit.
A second-year course focusing on developing reading fluency in Sanskrit. Selections are chosen to reinforce student’s knowledge of grammar from SANS 502, to expand vocabulary, and to introduce the huge corpus of Pauranic texts.

SANS 801, 802 - (1-3) (IR)
Independent Study in Sanskrit

Graduate Study

The department offers a broad program emphasizing theoretical and observational astrophysics, astrometry, and radio astronomy. Courses in physics and mathematics are also required to complement a student’s studies. Most students take three or four courses per semester during the first two years and perhaps one in the third year.

A second-year course focusing on developing reading fluency in Sanskrit. Selections are chosen to reinforce student’s knowledge of grammar from SANS 502, to expand vocabulary, and to introduce the huge corpus of Pauranic texts.

SANS 801, 802 - (1-3) (IR)
Independent Study in Sanskrit

South Asian Studies

The Languages of South Asia
An examination of the phonological, morphological, and syntactic structures of South Asian languages from typological, social, and historical perspectives. No knowledge of a South Asian language or linguistics is required.

For other courses in Asian and Middle Eastern Languages and Cultures, consult the Undergraduate Record.

Department of Astronomy

Astronomy Building
530 McCormick Road
University of Virginia
P.O. Box 400325
Charlottesville, VA 22904-4325
(434) 924-7494
gradadm@astsun.astro.virginia.edu
www.astro.virginia.edu

Degree Requirements

Graduate Study

The department offers a broad program emphasizing theoretical and observational astrophysics, astrometry, and radio astronomy. Courses in physics and mathematics are also required to complement a student’s studies. Most students take three or four courses per semester during the first two years and perhaps one in the third year.

Students should become involved in research as early as possible and are expected to work closely with members of the faculty on research topics in an apprenticeship-like arrangement. This allows the student to gain competence and independence in a relatively short period of time. Most student research projects produce published papers. First- and second-year students ordinarily take three credits of research each semester under ASTR 995.

For the M.S. degree, students are required to successfully complete 24 graduate course credits, including six credits of ASTR 995 (Directed Research); pass the qualifying examination for the M.S. degree, given in January of the first year; and submit a written description their research. This last requirement is waived if the student’s research is accepted for publication by a referred journal and the student is a principal author. Normally, the M.S. degree is awarded at the end of the first year of studies.

The Doctor of Philosophy degree requires successful completion of 72 graduate credits, at least 54 of which should be in courses other than non-topical research. The qualifying examination for the Ph.D. is given in January of the second year. The student’s entire record, including the qualifying examinations, course work, and indications of research potential, is considered by the graduate faculty when recommendations for Ph.D. degree candidacy are made in February of the second year. There is no language requirement for either the M.S. or Ph.D. degree. Ph.D. students are expected to complete their dissertations by the end of their sixth year, and financial aid is generally not continued beyond the sixth year.

Facilities

Astronomy building consists of the Large Binocular Telescope Consortium, and through the Steward Observatory has guaranteed access to some of the largest telescopes in the world. Local observing facilities include a 100-cm Schmidt-Cassegrain reflecting telescope and a conventional 75-cm reflector at Fan Mountain, 25 km to the southwest of Charlottesville. These are equipped for CCD imaging, photometry, spectroscopy, and direct photography. On the Grounds is the Leander McCormick Observatory 66-cm refractor, which began operations in 1885, and its collection of 140,000 astrometric photographic plates, which represents a major astronomical resource. A computer-controlled PDS microdensitometer for analysis of photographic plates is available.

The department provides excellent computing and image processing facilities based on a local network of Sun UNIX workstations, a Beowulf cluster, and the University’s IBM UNIX workstations. Supercomputer access at national laboratories is readily available via faculty sponsorship.

The offices of the National Radio Astronomy Observatory are located on the University Grounds, and it is possible for students to be jointly supervised by University and NRAO scientific staff members. Faculty and students often collaborate with astronomers at the Space Telescope Science Institute, NASA-Goddard, the Naval Observatory, and other conveniently accessible research centers in the Washington-Baltimore area.

For further information, please write Astronomy Graduate Admissions, University of Virginia, P.O. Box 400325, Charlottesville, VA 22904-4325; or gradadm@astsun.astro.virginia.edu.

Course Descriptions

ASTR 511 - (3) (O)
Astronomical Techniques
Prerequisite: ASTR 211-212, PHYS 342, 343 or instructor permission.
Surveys modern techniques of radiation measurement, data analysis, and image processing, and their application to astrophysical problems, especially the physical properties of stars and galaxies. Relevant laboratory experiments and observations with the department’s telescopes are included. Students are expected to develop a familiarity with programming and other basic computer skills if they do not already possess them.

ASTR 534 - (3) (E)
Introductory Radio Astronomy
Prerequisite: MATH 225 and PHYS 210.
Studies the fundamentals of measuring power and power spectra, antennas, interferometers, and radiometers. Topics include thermal radiation, synchrotron radiation, and line frequency radiation; and radio emission from the planets, sun, flare stars, pulsars, supernovae, interstellar gas, galaxies, and quasars.

ASTR 533 - (3) (O)
Introduction to Radio Astronomy Instrumentation
Prerequisite: ASTR 534 or instructor permission.
An introduction to the instrumentation of radio astronomy. Discussion includes fundamentals of measuring radio signals, noise theory, basic radiometry, antennas, low noise electronics, coherent receivers, signal processing for continuum and spectral line studies, and arrays. Lecture material is supplemented by illustrative labs.

ASTR 539, 540 - (3) (IR)
Topical Seminar
Prerequisite: Instructor permission.
Detailed study of a current topic. Topic to be covered appears in the Course Offering Directory for the semester in which it is given.

ASTR 542 - (3) (E)
Interstellar Medium
Prerequisite: Instructor permission.
Studies the physics of the interstellar gas and grains, the distribution and dynamics of gas, and cosmic radiation and interstellar magnetic fields.

ASTR 543: 544 - (3) (O)
Stellar Astrophysics
Prerequisite: Instructor permission.
Studies observed properties and physics of stars including radiative transfer; stellar thermodynamics; convection; formation of spectra in atmospheres; equations of stellar structure; nuclear reactions; stellar evolution; and nucleosynthesis. Includes applicable numerical techniques.

ASTR 545 - (3) (E)
High Energy Astrophysics
Prerequisite: Instructor permission.
Introduces the physics of basic radiation mechanisms and particle acceleration processes that are important in high energy phenomena and space science. Discusses applications to pulsars, active galactic nuclei, radio galaxies, quasars, and supernovae.

ASTR 546 - (3) (SI)
Binary Stars
Prerequisite: Instructor permission.
Topics include the determination of orbital elements, the mass-luminosity-radius relation, formation of binary systems, the Roche model, mass loss, mass transfer, circumstellar material, accretion disks, evolution of close interacting binaries, and some special classes of binaries such as cataclysmic variables, RS CVn binaries, Algol-type binaries, and X-ray binaries.
ASTR 548 - (3) (O)
Evolution of the Universe
Prerequisite: Instructor permission.
Studies the origin and evolution of structure in the universe. Topics include the formation and evolution of galaxies, and tests of the theory based on observations of large-scale structure and the properties of galaxies as a function of look-back time.

ASTR 551 - (3) (O)
Galactic Structure and Stellar Populations
Prerequisite: Instructor permission.
Explores the structure and evolution of star clusters and galaxies, with emphasis on the kinematics, chemistry, ages, and spectral energy distributions of stellar populations. The course introduces fundamental tools of Galactic astronomy, including methods for assessing the size, shape, age, and dynamics of the Milky Way and other stellar systems, galaxy formation, interstellar gas and dust, dark matter, and the distance scale.

ASTR 553 - (3) (O)
Extragalactic Astronomy
Prerequisite: Physics and Math through PHYS 251, MATH 325 (or equivalent); ASTR 211,212 (or equivalent).
This course provides an overview of extragalactic astronomy. Topics include both qualitative and quantitative discussion of various types of galaxy (ellipticals, spirals, dwarf, starburst); results from theory of stellar dynamics; groups and clusters of galaxies; active galaxies; high-redshift galaxies; galaxy evolution; the intergalactic medium; and dark matter. The course is intended for advanced undergraduate astrophysics majors and first and second year graduate students.

ASTR 571, 572 - (3) (S)
Fundamental Concepts in Astronomy
Prerequisite: Curry School students; instructor permission.
Subject matter is the same as ASTR 121, 124, with special reading assignments and consultation on topics in astronomical education. Offered concurrently with undergraduate section.

ASTR 573 - (3) (S)
Laboratory Concepts in Astronomy
Prerequisite: Curry School students; instructor permission.
Subject matter is the same as ASTR 130, with special reading assignments and consultation on topics in astronomical education. Offered concurrently with undergraduate section.

ASTR 575, 576, 577, 578 - (3) (S)
General Topics in Astronomy
Prerequisite: Curry School students; instructor permission.
The subject matter of these courses is the same as ASTR 341, 342, 347, 348, respectively. Students are offered special reading assignments and consultation on topics in astronomical education. Offered concurrently with undergraduate sections.

ASTR 836 - (1) (S)
Current Astronomical Topics
UVa staff and guest speakers discuss current research problems.

ASTR 849, 850 - (3) (SI)
Advanced Seminar
Subjects of current interest, such as star formation, galaxy evolution, cosmology, etc., are discussed. The topic to be covered appears in the Course Offering Directory each semester.

ASTR 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

ASTR 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

ASTR 995 - (3-12) (S)
Supervised Research
Under supervision, the student undertakes or assists with a current research problem. This course may be repeated for credit.

ASTR 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

ASTR 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Biochemistry and Molecular Genetics
Jordan Hall
University of Virginia
P.O. Box 800733
Charlottesville, VA 22908-0733
(434) 924-1997 Fax: (434) 925-5069
biochem@virginia.edu
www.virginia.edu/bmg

Degree Requirements
Requirements for the Ph.D. Degree
Candidates for the degree of Doctor of Philosophy in Biochemistry and Molecular Genetics usually have a baccalaureate degree in chemistry, biochemistry, or biology, and have taken courses in introductory biochemistry, calculus, physical and organic chemistry, and physics. Prospective students should apply for admission through the Biochemistry, Molecular Biology and Genetics graduate group of the Biomedical Sciences. The thesis advisor is chosen after completion of rotations in three laboratories, normally at the end of the first year, at which time a research committee, including the advisor, is also formed.

Students develop their program of study with a committee of three faculty members. This program must satisfy requirements in the areas of biochemistry, advanced chemistry, cell biology, gene expression, and mathematics, in addition to special interest electives. Except for seminars, the program is typically completed within the student’s first two years. Students must submit and orally defend a written research proposal at the end of their second year of residence. Demonstrated knowledge of a foreign language is not required for a graduate degree in biochemistry.

Research for the dissertation is regarded as the candidate’s major training. The final examination for the Ph.D. is devoted entirely to a defense of the dissertation by the candidate. Generally the degree program is completed in five years.

Course Descriptions
BIOC 503 - (4) (S)
Biochemistry: Macromolecular Structure and Function
Prerequisite: Calculus, organic chemistry, physical chemistry. Some introductory knowledge assumed.
Provides the necessary background at the professional level for careers in a variety of biological and physical sciences.

BIOC 505, 506 - (2-6) (S)
Biochemistry Projects
Open only to graduate students in the Department of Biochemistry and Molecular Genetics. Introduces biochemical research. Students conduct two or more research projects of limited scope under the direction of staff members.

BIOC 508 - (3) (SI)
Computer Analysis of DNA and Protein Sequences
Prerequisite: MICR 811 or instructor permission.
Surveys computer methods for analyzing DNA and protein sequences. Discusses analytical methods, including DNA and protein sequence comparisons; recognition of patterns in DNA and protein sequences; finding genes; protein structure prediction; analyzing protein 3-D structure; and constructing evolutionary trees.

BIOC 813, 814 - (1) (S)
Colloquium
Research seminars by invited guests and research personnel within the department. All biochemistry graduate students must attend.

BIOC 815, 816 - (1) (S)
Biochemical Literature
A continuing seminar based on papers in the current literature. Participation is required.

BIOC 817 - (3) (O)
Structure and Function of Proteins
Prerequisite: BIOC 503 or instructor permission.
Includes molecular modeling, protein/receptor interactions; cytoskeletal communication with matrix; supramolecular assembly of proteins; regulation of enzymatic activity; protein/DNA interactions; regulation via covalent modification of proteins; protein/membrane interactions; protein evolution; protein processing; and proteins in molecular motion.

BIOC 825 - (6) (Y)
Medical Biochemistry
Prerequisite: Instructor permission.
Note: BIOC 901, 902 through BIOC 997 are taken for doctoral research, before a dissertation director has been selected.
applicants should enclose: (a) a personal statement of 500 words about their motivation to pursue this degree and plans for the future use of the required knowledge and skills; and (b) a writing sample from a course on bioethics or applied ethics or write and submit a 500-word essay on the relationship between autonomy and beneficence in contemporary bioethics.

Other interested persons may obtain an application at http://artsandsciences.virginia.edu/admissions/apply.html. In addition to the written materials described above, an applicant’s scores from the Graduate Record Examination (within 5 years) are required. An applicant may petition to substitute other national test scores (e.g., the LSATs or MCATs, if taken with 5 years) for the GRE.

Fellowship Support A limited amount of fellowship support may be available, distributed at the discretion of the Steering Committee. This support generally involves modest service to the program, to be arranged in consultation with the program director.

Degree Requirements 24 credits plus a thesis (6 credits) prepared so as to be publishable after editing, or 30 credits of courses.

Required Courses The M.A. in Bioethics requires 15 credits in Foundations of Bioethics, Clinical Ethics (which should be taken in the fall-spring sequence), and 3 Group I courses.

Foundations of Bioethics All students must take Foundations of Bioethics, which introduces the central problems and issues addressed by the field and the major concepts, methods, and ethical perspectives that bioethics brings to bear on these problems and issues.

Clinical Ethics All students must take Clinical Ethics, which introduces the central ethical problems and issues that arise in the clinical setting.

Group I courses All students must take at least 3 Group I courses (listed below) on specific problems and issues addressed by the field of bioethics. Selection of these 3 credit courses will be guided by the student’s area of concentration and discipline.

Biology requirement Students needing more background in human biology and medicine must pass BIOL 121 (non-credit) and/or pass a required study course and examination in basic pathophysiology and anatomy. These decisions will be made in the admission and advising process.

Electives The remainder of credits for the M.A. in Bioethics may be taken from any of the remaining Group I courses or other courses offered at the university with the approval of the program director.

Group I

RELG 423 Bioethics Internship Seminar
PHIL 504 Global Justice, Health, and Human Rights
PHIL 565 Justice and Health Care
PHIL 559 Research Ethics
PHIL 558 Reproductive Ethics
RELC 558 History of Christian Ethics
REL 578 Ethical Issues in Human Genetics
LAW 624 Death, Dying, and the Law
RELG 541 Human Bodies and their Parts as Property
RELG 814 History of Bioethics: The Great Cases
RELG 806 Bioethics and Health Care Law
ANTH 728 Anthropology of the Body: Violence, Terror, and Pain
GSAS 510 U.S. Healthcare System (cross-listed as HES 710)
GNUR 706 Nursing Ethics for Advanced Practice
LAW 709 Public Health, Ethics, and Law
RELG 550 Love and Justice
RELG 265 Theology, Ethics, and Medicine (graduate section)
LAW 688 Law and Medicine
LAW 604 Mental Health Law
PHIL 751 Ethics
PHIL 752 Contemporary Ethics
PHIL 757 Political Philosophy
PHIL 766 Contemporary Political Philosophy
PHIL 818 Kant’s Ethics
PHIL 816 Hume’s Ethics
GBUS 902 Foundations of Business Ethics
GBUS 909 Contemporary Issues in Business Ethics
LAW 649 Great Cases

Program Location The program is located in the Center for Biomedical Ethics in the School of Medicine.

The Steering Committee reports to the Deans of the Schools of Medicine, Law, and Nursing and to the Dean of the Graduate School of Arts and Sciences.

Course Descriptions
BIOE 810 - (3) (Y)
Foundations in Bioethics
Introduces the central problems and issues addressed by the field and the major concepts, methods, and ethical perspectives that bioethics brings to bear on these problems and issues.

BIOE 811 - (3) (Y)
Clinical Ethics
Explores some of the major ethical issues that arise in clinical medicine and provides an introduction to methods used in the clinical and research settings to address these issues. Discussion of how the basic principles of biomedical ethics apply in specific clinical situations and an examination of the cases that demonstrate commonly encountered dilemmas.

Department of Biology
229 Gilmer Hall
University of Virginia
P.O. Box 400328
Charlottesville, VA 22904-4328
(434) 982-5474
www.virginia.edu/biology

Degree Requirements
Mountain Lake Additional graduate courses are offered during the summer session at the Mountain Lake Biological Station. There is also a Mountain Lake Master’s Degree Program. Further information may be obtained from the Director, Mountain Lake Biological Station, Department of Biology, Gilmer Hall, University of Virginia, P.O. Box 400327, Charlottesville, VA 22904-4327, www.mlbs.org, or from the Director of the Summer Session, 258 Garrett Hall, University of Virginia, P.O. Box 400161, Charlottesville, VA 22904-4161.

Master of Arts in Conservation Biology
The minimum residence requirement is one session and one full summer at this University, or three full summers. A master’s degree candidate must successfully complete a minimum of 24 credits of course work at the graduate level, exclusive of 800-level and 900-level research courses.

Master of Arts in Conservation Biology Students in Environmental and Biological Conservation (EBC) in the Biology Department are expected to have advanced undergraduate or graduate experience in ecology, evolution, and genetics. The core requirements for this degree include one course in Ecology, two courses in Evolutionary genetics, one course in Conservation Methods, and one seminar in Environmental and Conservation Biology. A current list of courses that meet these requirements may be obtained from the department. Additional conservation-oriented classes may be taken with approval from the EBC graduate committee to meet the requirement of 16 total credits of graduate coursework. In addition to the above coursework, 8 credits of independent study, on an approved topic related to Conservation Biology, must be taken for a total of 24 credits.

Doctor of Philosophy Students who select biology as their major subject, in addition to meeting the regular University requirements, must have a general knowledge of related sciences, such as chemistry, mathematics, and physics, and a comprehensive knowledge of the various aspects of biology, as attested by the completion of prescribed courses and examinations. The department’s additional requirements include the successful completion of a minimum of 20 credits of graduate-level lecture or laboratory course work and involvement in a program of seminar courses. These requirements are subject to change from year to year, but a current list may be obtained from the biology department. The completion of residence requirements and class work does not guarantee a degree to any student; the preeminent qualifications are thoroughness in work, resourcefulness, initiative, creative ability, and intellectual drive.

Course Descriptions
Note: BIOL 201, 202, 203, 204 or equivalent are prerequisite for all advanced courses.

BIOI 501 - (4) (Y)
Biochemistry
Prerequisite: BIOL 300; organic chemistry. Structure and function of the major constituents of cells—proteins, nucleic acids, lipids and carbohydrates—and the relationship to cellular metabolism and self-replication. Lectures and discussion.

BIOI 508 - (4) (Y)
Developmental Mechanisms
Prerequisite: BIOL 300, 301. Analyzes the cellular and molecular basis of developmental phenomena, reviewing both classical foundations and recent discoveries. Lectures focus on the major developmental systems used for analysis of embryogenesis (e.g., mouse, frog, and fly) and concentrate on several themes that pervade modern research in this area (e.g., signal transduction mechanisms). Readings are from the primary research literature, supplemented by textbook assignments. Lectures and discussion.

BIOI 509 - (2) (SI)
Current Topics in Plant Molecular Biology
Prerequisite: Instructor permission. Discussion of current literature and selected topics on the biochemical and molecular genetic basis for plant cellular growth and differentiation. Weekly readings and student presentations.

BIOI 512 - (3) (Y)
Comparative Biochemistry
Prerequisite: Organic chemistry; BIOL 501; instructor permission. Examines the biochemical adaptations that have arisen in organisms in response to physiological demands. Topics drawn from recent advances in elucidating molecular mechanisms of metabolic regulation.

BIOI 541 - (4) (O)
Molecular Biology and Genetics
Prerequisite: BIOL 300, 301. A survey of contemporary issues in molecular biology and genetics. The course will be a combination of text based lectures and discussions of the current literature emphasizing the development of critical reading techniques.

BIOI 546 - (4) (IR)
Molecular Neuroscience
Prerequisite: BIOL 300, 301. Covers contributions of molecular and molecular genetic studies to neural development and function. Utilizes primary literature and literature reviews, emphasizing critical reading skills and analysis of molecular data.
Biol 701 - (3) (E)  
**Macroevolution**  
*Prerequisite:* Biol 301  
Survey of new problems and approaches to large-scale (above the species level) ecological and evolutionary patterns. The course will emphasize modern conceptual issues and methodological advances. Laboratory work will involve computer applications in systematic and statistics.

Biol 702 - (4) (E)  
**Ecological and Evolutionary Genetics**  
*Prerequisite:* Biol 301  
Examines the mechanisms of evolution within populations, molecular evolution, and the process of speculation. Topics include genetics of adaptation and speciation, natural selection, and the processes influencing the evolution of genes and genomes at the molecular level.

Biol 711, 712 - (1-4) (Y)  
**Independent Study in Biology**  
A biology faculty member supervises and approves all components of this course, designating the number of credits to be earned prior to enrollment. Students successfully complete one or more courses offered by the Department of Biology at the 300 level or above and, for each course, write a 10-page (minimum) paper on a relevant topic.

Biol 713 - (3) (Y)  
**Population Ecology and Conservation Biology**  
The natural history and mathematical theory of population dynamics, species interactions and life history evolution. Lectures emphasize theory and experimental tests; class discussions focus on applications to conservation of plant and animal populations.

Biol 723 - (3) (Y)  
**Animal Physiology**  
Uses diverse examples to identify general principles in physiological adaptation of animals to environmental challenges.

Biol 785 - (2) (Y)  
**Seminar in Environmental and Conservation Biology**  
In-depth investigation of current research and practice in environmental and biological conservation. Format will include the discussion of fundamental and recent readings in conservation and guest speakers from the local scientific and conservation communities.

Biol 801 - (2) (Y)  
**Colloquium in Developmental Biology**  
*Prerequisite:* Instructor permission.  
A weekly conference in which students present reports covering various aspects of development. May be repeated for credit.

Biol 802 - (2) (Y)  
**Colloquium in Physiology**  
*Prerequisite:* Instructor permission.  
A weekly conference in which students present reports covering various aspects of physiology. May be repeated for credit.

Biol 803 - (2) (Y)  
**Colloquium in Genetics**  
*Prerequisite:* Instructor permission.  
A weekly conference in which students present reports covering aspects of genetics. May be repeated for credit.

Biol 804 - (2) (Y)  
**Colloquium in Biology**  
*Prerequisite:* Instructor permission.  
A weekly conference in which students present reports covering various topics that cross development, genetics, and physiology. May be repeated for credit.

Biol 806 - (2) (IR)  
**Colloquium in Neurobiology**  
*Prerequisite:* Biol 817 or instructor permission.  
Readings and two-hour student seminar preparations focusing on a coherent topic (which changes annually). Examines topics of timely experimental and theoretical importance in the areas of membrane physiology, synaptology, simpler neuronal networks, cellular basis of behavior, sensory physiology, and developmental neurobiology.

Biol 807 - (2) (IR)  
**Colloquium in Population Biology**  
*Prerequisite:* Instructor permission.  
A weekly conference arranged around a current topic. May be repeated for credit.

Biol 814 - (2) (SI)  
**Developmental Genetics**  
Analyzes the role of genes in development and an examination of the idea of differential gene action during development.

Biol 817 - (4) (Y)  
**Neurophysiology**  
Analyzes nerve and muscle function. Includes Nernst and Goldman theories of biological membrane potentials; Hodgkin-Huxley theory of the nerve impulse; passive electrical properties of nerve and muscle membranes; analysis of function in restricted neural networks; and mechanisms in neuronal development.

Biol 820 - (3) (Y)  
**Structure and Regulation of Eukaryotic Genes**  
*Prerequisite:* Instructor permission.  
Studies the structure, regulation, and evolution of eukaryotic genes, reviewing current literature and ideas in this field.

Biol 825, 826 - (1) (Y)  
**Scientific Presentations and Papers**  
Oral presentations and analysis of research articles. Required of all first-year graduate students in biology.

Biol 849 - (2) (IR)  
**Advanced Drosophila Genetics**  
*Prerequisite:* Biol 511 or equivalent.  
Examines genetic techniques available in Drosophila: segregation and use of translocation heterozygotes in the generation of segment aneuploids; segregation and use of compound chromosomes, including their use in the half-tetrad analysis of gene conversion events; methods for making mosaics; methods for P-element induced mutagenesis, including site directed mutagenesis; P-element mediated transformation; and using enhancer traps.

Biol 880 - (2) (SI)  
**Selected Topics in Genetics**  
A weekly conference with reports from recent literature on genes and gene action.

Biol 881 - (2) (SI)  
**Selected Topics in Evolution**  
*Prerequisite:* Instructor permission.  
A weekly seminar on current problems with reports from recent literature.

Biol 882 - (2) (SI)  
**Selected Topics in Developmental Biology**  
*Prerequisite:* Instructor permission.  
A discussion of current problems.

Biol 884 - (2) (SI)  
**Selected Topics in Physiology**  
A discussion of current problems.

Biol 885 - (2) (SI)  
**Selected Topics in Molecular Genetics**  
A weekly seminar on current problems with reports from recent literature.

Biol 886 - (2) (SI)  
**Selected Topics in Cell Biology**  
*Prerequisite:* Instructor permission.  
A discussion of current problems.

Biol 887 - (2) (SI)  
**Selected Topics in Developmental Genetics**  
*Prerequisite:* Instructor permission.  
A discussion of current problems.

Biol 888 - (2) (SI)  
**Selected Topics in Biochemistry**  
*Prerequisite:* Instructor permission.  
A discussion of current problems.

Biol 890 - (3) (SI)  
**Selected Topics in Developmental Botany**  
*Prerequisite:* Instructor permission.  
A discussion of current problems.

Biol 897 - (3-12) (S)  
**Non-Topical Research, Preparation for Research**  
For master’s research, taken before a thesis director has been selected.

Biol 898 - (3-12) (S)  
**Non-Topical Research**  
For master’s thesis, taken under the supervision of a thesis director.

Biol 901, 902 - (1-12) (S)  
**Research in Genetic Development**

Biol 903, 904 - (1-12) (S)  
**Research in Yeast Genetics**

Biol 907, 908 - (1-12) (S)  
**Research in Molecular Genetics**

Biol 909, 910 - (1-12) (S)  
**Research in Developmental Biology**

Biol 911, 912 - (1-12) (S)  
**Research on Protein Structure**

Biol 915, 916 - (1-12) (S)  
**Research in Biochemistry**

Biol 923, 924 - (1-12) (S)  
**Research in Neuroethology of Electric Fish**
Program in Biomedical Sciences
Graduate Programs Office
School of Medicine
University of Virginia
P.O. Box 800738
Charlottesville, VA 22908-0738
(434) 924-2181
medgpo@virginia.edu
www.healthsystem.virginia.edu/internet/bims

Requirements
Admission Biomedical Sciences is strictly an admissions program. Students participate in a core curriculum and research rotations during their first year in the program, but are required to select a degree granting graduate program by the end of their first year. While there are no rigid prerequisites for admission to the Biomedical Sciences, the optimal background of entering students includes courses in biology, chemistry, mathematics, and physics. The GRE subject test is required for admission.

Fields of Study Biomedical Sciences includes a broad range of disciplines including Biochemistry and Molecular Genetics, Biodefense, Biomedical Engineering, Biophysics, Biotechnology, Cancer Research, Cardiovascular Research, Cell Biology, Cell and Molecular Biology, Computational Biology, Developmental Biology, Immunology, Infectious Diseases, Microbiology, Molecular Medicine and Systems Biology, Neuroscience, Pharmacology, and Structural Biology.

Doctor of Philosophy The program is designed for maximum flexibility to permit students to identify their research area and an appropriate mentor. Once the mentor has been identified, the student will transfer to a Ph.D.-granting program serving that mentor.

Faculty Biomedical Sciences is an interdisciplinary category that encompasses faculty from departments in the College of Arts and Sciences, School of Engineering and the School of Medicine.

Course Descriptions
BIMS 503 - (4) (S)
Macromolecular Structure and Function
Prerequisite: BIMS 812. Principles of optical and electron microscopy, light absorption and emission, quantitative fluorescence imaging; in vivo imaging; image processing, FRET and FLIM, photo-bleaching and photo-activation, fluorescence correlation spectroscopy, speckle microscopy, and other new techniques for studying cell dynamics by microscopy. Includes lectures on topics and discussions of research papers.

BIMS 809 - (1) (Y)
Cell Imaging
Prerequisite: BIMS 812. Principles of optical and electron microscopy, light absorption and emission, quantitative fluorescence imaging; in vivo imaging; image processing, FRET and FLIM, photo-bleaching and photo-activation, fluorescence correlation spectroscopy, speckle microscopy, and other new techniques for studying cell dynamics by microscopy. Includes lectures on topics and discussions of research papers.

BIMS 811 - (5) (Y)
Gene Structure, Expression and Regulation
Study of the molecular biology of bacterial and eukaryotic cells, emphasizing the application of recombinant DNA for elucidation of gene structure, the mechanism of gene expression, and its regulation. Five lecture hours.
BIMS 812 - (5) (Y)
Cell Structure and Function
A beginning graduate course in molecular cell biology examining the functional organization of eukaryotic cells and the interactions of cells with their surroundings. General and specialized forms of cell signaling are discussed, and events involved in regulating cell proliferation and differentiation are emphasized. Five lecture hours.

BIMS 813, 814 - (2) (S)
Topics in the Molecular Basis of Human Disease
The course will address the biologic/molecular mechanisms related to selected disease processes as they affect specific cell types, tissues, and/or organic systems. A strong focus of the course will be the discussion of the basic pathobiologic processes and the contemporary biomedical translation of experimental science to the understanding and treatment of human disease.

BIMS 815, 816 - (1) (S)
Cell and Molecular Biology Literature
A continuing seminar based on papers in the current literature.

BIMS 817, 818 - (1) (S)
M.D./Ph.D. Research in Progress Colloquium
The Research in Progress Colloquium is a series of research seminars and short talks by students in our combined M.D./Ph.D. Program. The major goals of the course are to familiarize students with key research areas of importance for training as physician scientists, and to develop the student’s presentation skills. Students are required to give a minimum of one oral presentation per year to their fellow students and to selected faculty members who have expertise in the area of presentation. Students also are required to attend presentations of other students and to participate in group discussions. In addition to research presentations by students, there will also be presentations by faculty members in areas of significance for training of physician scientists. Grading (S/U) will be based on the quality of the students’ presentation, as well as the extent of their participation in group discussions.

BIMS 819, 820 - (1) (S)
Biotechnology Research Seminars
This weekly research-in-progress student series will be overseen by the Biotechnology Training Program Director or Co-Director. Trainees will present their research results or a related journal article on a round robin basis involving a single presenter per session. To ensure that trainees learn how to prepare research or journal presentations, a training program mentor will be scheduled to meet with a trainee one week before the presentation for rehearsals. This weekly research-in-progress student series will be overseen by the Biotechnology Training Program Director or Co-Director. Trainees will present their research results or a related journal article on a round robin basis involving a single presenter per session. To ensure that trainees learn how to prepare research or journal presentations, a training program mentor will be scheduled to meet with a trainee one week before the presentation for rehearsals.

BIMS 821, 822 - (1) (S)
Biotechnology Industrial Externship
A one to four month training experience at participating Biotechnology Training Program host companies or facilities. Students contribute to host company research projects, offering ideas and interact with company/facility officials. Student performance is graded by the hosting company official using a standardized form. Externship occurs within 2 years of entering the Biotechnology Training Program.

BIMS 824 - (3) (SI)
Chromatin Structure and Function
This course is designed to provide students with a broad understanding of the role that chromatin structure plays in multiple chromosomal processes. Emphasis is placed on the integration of structural, biochemical, and genetic approaches to chromatin function. Topics covered include nucleosome structure, DNA replication and nucleosome assembly, chromosome condensation, post-translational histone modifications, chromatin remodeling, gene silencing, and many others.

BIMS 832 - (5) (Y)
Graduate Physiology
A course in mammalian physiology that integrates events that occur on the cellular, tissue, and organ level to understand the vital functions of the human body. Emphasis is placed on common cellular principles that underlie tissue organization and function, and advances to an understanding of specific functional roles carried out by each organ system.

BIMS 834 - (2) (Y)
Issues in Biodefense: Science and Policy
Analysis of historical, clinical, practical, social, and political issues that have emerged as a consequence of bioterrorism.

BIMS 835, 836 - (1) (S)
Colloquium in Immunology
Prerequisite: permission of instructor. Students will present in rotation critical analysis of seminal and current research papers in areas of immunology. Papers will be chosen in consultation with different faculty members, who will also provide background reading and introductory material. Two conference hours per week.

BIMS 841 - (3) (Y)
Advanced Topics in Cancer
Prerequisite: MICR 815 and BIMS 812. Continuing education in cancer-related topics, focusing on four topics from the current literature. Faculty with special interest in each topic will guide students, who will be responsible for presenting and discussing the contents of selected research papers.

BIMS 852 - (3) (E)
Vascular Biology
Prerequisite: One course in mammalian physiology and one in cell biology.

Program in Biophysics

The Interdisciplinary Program in Biophysics at the University of Virginia comprises the research and teaching facilities of some 30 faculty members in the College of Arts and Sciences, the School of Engineering and Applied Science, and the School of Medicine. The graduate teaching program is designed to allow a maximum degree of flexibility so that students with varying backgrounds can be prepared to investigate the broad range of problems encompassed by biophysics.

Admission
Students with a bachelor’s degree in science or engineering will be considered for admission. A strong undergraduate background in physics, chemistry, and mathematics is desirable. Students lacking particular prerequisites may take appropriate courses during their first year of graduate study.

Financial Support
Financial support is available to all students in the program. Biophysics fellowships are granted to first- and second-year students on a competitive basis.
Research assistantships are available to graduate students at all levels. Several departments which have faculty members active in the biophysics program administer fellowships and teaching assistantships for which biophysics students may qualify.

**Supervision**

An entering biophysics student is assigned an advisory committee which guides the student in choosing course work and rotations. Later, when the student chooses a thesis mentor, a thesis committee is chosen upon mutual consent of the mentor, student, and committee member. This committee meets at regular intervals to review the progress of the student’s research, and acts as a thesis defense committee.

**Course of Study and Degree Requirements**

The program maintains a maximum degree of flexibility in order to meet the needs and wishes of each individual student. Students will be advised to take courses in biology, chemistry, physics, mathematics, or other appropriate areas to supplement their training and to prepare them for their field of special interest. Specifically designed biophysics courses, seminars, and journal clubs are also offered. No language requirement is specified. Each student will be expected to demonstrate an advanced understanding of his or her chosen field. In addition the student must meet the University residency and credit requirement as listed in this Graduate Record. The student will meet periodically with their advisory committee during the course of their research work. Finally, the student must submit and successfully defend a dissertation describing original research in a field of biophysics.

**Course Descriptions**

**BIOP 506 - (4) (Y)**

**Experimental Approaches in Molecular Biophysics**

A survey course of modern biophysical methods, including diffraction, spectroscopy, electrophysiology, and microscopy. The course is taught collaboratively by a large fraction of the Biophysics Program faculty. Besides getting an introduction into the various aspects of molecular biophysics, it offers the students an opportunity to get to know many of the program faculty and their research.

**BIOP 507 - (3) (Y)**

**Thermodynamics and Kinetics of Biological Systems**

This course introduces students to key theoretical concepts in modern biophysics. Statistical thermodynamics, electrostatics and electrochemistry, biochemical kinetics, and molecular driving forces will be discussed at an intermediate to advanced level.

**BIOP 751 - (1-5) (Y)**

**Directed Reading**

Designed on an individual basis, students who have deficiencies in particular areas pertaining to biophysics will be advised by a faculty member to read texts in that area and will discuss the contents with the faculty mentor on a regular basis.

**BIOP 801 - (1) (S)**

**Special Topics in Biophysics**

A seminar series comprised of 45-minute informal talks given by students, faculty, and guest speakers.

**BIOP 802 - (3) (SI)**

**Advanced Protein Crystallography**

An in-depth assessment of the current methodology in macromolecular crystallography. In addition to formal lectures, a number of hands-on sessions introduce students to experimental aspects of crystallization and sample preparation, data collection, as well as selected problems in computing. The lectures cover selected aspects of crystal symmetry, diffraction theory including diffraction by helical structures and fiber diffraction, methods of data collection and structure solution, with emphasis on the contemporary approaches utilizing synchrotron radiation and exploiting anomalous scattering. Refinement and model assessment and selected papers are discussed.

**BIOP 803 - (3) (Y)**

**Magnetic Resonance Spectroscopy of Macromolecules**

The course focuses on the application of NMR spectroscopy to protein structure determination. Topics include classical and quantum description of NMR, density matrix theory and relaxation mechanisms, multi-dimensional homo/heteronuclear NMR, pulse sequence design, structure calculation from NMR data, molecular dynamics calculations. Two additional lectures each are devoted to solid-state NMR and EPR.

**BIOP 505 - (3) (Y)**

**Biophysical Literature**

A journal club. Students present recent research papers in biophysics and/or report on progress of their own research projects. Students learn how to effectively read, critique, and present science research progress.

**BIOP 897 - (3-12) (S-SS)**

**Non-Topical Research, Preparation for Master’s Research**

Research for the master’s degree, taken before a thesis advisor has been chosen.

**BIOP 898 - (3-12) (S-SS)**

**Non-Topical Research, Master’s Research**

Research for the master’s degree, taken under the direction of a thesis advisor.

**BIOP 995 - (3-12) (S)**

**Biophysics Research**

Independent study, other than non-topical research, for course credits.

**BIOP 997 - (3-12) (S-SS)**

**Non-Topical Research, Preparation for Doctoral Research**

For doctoral research, taken before a dissertation director has been selected.

**BIOP 999 - (3-12) (S-SS)**

**Non-Topical Research**

For doctoral research, taken under the supervision of a dissertation director.

**Non-Departmental Courses**

Biophysics students may choose relevant courses from the following departments:

**Biomedical Studies**

**BIMS 503 - (4) (Y)**

**Macromolecular Structure and Function**

An introductory graduate course that integrates elements of biological regulation, enzyme function and kinetics, physical biochemistry, and structural biology.

**BIMS 710 - (1) (Y)**

**Research Ethics**

A discussion-based approach to ethical problems facing biomedical researchers.

**BIMS 811 - (5) (Y)**

**Gene Structure, Regulation, and Expression**

**BIMS 812 - (5) (Y)**

**Cell Structure and Function**

An analysis of current research on the interrelationships of structure and function in eukaryotic cells. Special emphasis is placed on cellular membranes, neuromuscular activities, and cellular interactions as they relate to development and cancer.

**Biochemistry**

**BIOC 508 - (2) (Y)**

**Computer Analysis of DNA and Protein Sequences**

The theory and practice of biological sequence analysis is covered. The course provides a quick introduction to the GCG package and other Web-based sequence analysis tools, and then goes into a detailed analysis of the algorithmic and statistical methods used for similarity searching, multiple-alignment, gene-finding, promoter recognition, RNA folding, and evolutionary tree construction.

**Microbiology**

**MICR 803 - (5) (Y)**

**Fundamental Immunology**

**MICR 815 - (4) (Y)**

**Molecular Basis of Cancer**

**Pharmacology**

**PHAR 908 - (2) (E)**

**Biochemical Pharmacology**

**PHAR 910 - (2) (E)**

**Endocrine Pharmacology**

**Physiology**

**PHY 813 - (3) (Y)**

**Structure and Function of Biological Membranes**

An in-depth assessment of the structure and function of biological membranes. The main topics are: (1) membrane and membrane protein structure, (2) lipid-protein interactions, (3) active transport and ion driven molecular
motors, and (4) ion channels and their regulation. Emphasis is placed on biophysical approaches in these areas. The primary literature will be the main source of reading.

**Chemistry**

- CHEM 521 · (3) (Y)
  Advanced Physical Chemistry I
- CHEM 522 · (3) (Y)
  Advanced Physical Chemistry II
- CHEM 821 · (3) (SI)
  Principles of Quantum Mechanics
- CHEM 822 · (3) (SI)
  Chemical Applications of Quantum Mechanics

**Physics**

- PHYS 725 · (3) (Y)
  Mathematical Methods of Physics I
- PHYS 751 · (3) (Y)
  Quantum Theory I
- PHYS 752 · (3) (Y)
  Quantum Theory II
- PHYS 831, 832 · (3) (Y)
  Statistical Mechanics

**Biology**

- BIOL 501 · (4) (Y)
  Biochemistry
- BIOL 503 · (4) (Y)
  Molecular Genetics
- BIOL 504 · (4) (IR)
  Advanced Cell Biology
- BIOL 817 · (4) (Y)
  Neurophysiology

**Mathematics**

- MATH 509 · (3) (Y)
  Mathematical Probability
- MATH 510 · (3) (Y)
  Mathematical Statistics
- MATH 511 · (3) (Y)
  Stochastic Processes

**Chemical Engineering**

- CHE 516 · (3) (SI)
  Advanced Thermodynamics
- CHE 716 · (3) (SI)
  Applied Statistical Mechanics

**Program in Cell and Molecular Biology**

**Requirements**

The Program in Cell and Molecular Biology at the University of Virginia offers comprehensive graduate training in modern biological sciences, emphasizing cellular, molecular, and developmental biology. The program provides the widest possible choice of mentors and, hence, research areas, and an individually-tailored academic program for each graduate student, on the assumption that the best biological scientists have a broad knowledge of cell and molecular biology, as well as a thorough understanding of a particular research area.

The program involves a large, diverse, and outstanding faculty of more than 75 members from eight basic science departments and programs: Cell Biology, Biochemistry and Molecular Genetics, Biology, Biophysics, Microbiology, Neurosciences, Pharmacology, Molecular Physiology and Biological Physics. The research interests of the faculty span the spectrum of modern cell and molecular biology, from studies of the intricate structure of biological molecules to the complex unfolding of developmental pathways in multicellular organisms. Cell and molecular biology faculty members teach courses individually or collectively through a core curriculum as well as under the auspices of individual departments.

The Program and participating departments host journal and research clubs relating to specialized research areas. Seminars given by outside speakers are offered throughout the school year by the Program in Cell and Molecular Biology and by individual departments and programs.

The Graduate Program Prospective students should apply for admission through one of the Biomedical Sciences graduate groups. Students participating in the Cell and Molecular Biology program are selected from those Biomedical Sciences graduate students who have chosen a Ph.D. advisor and completed at least the first year of graduate courses and training. With variations to fit research inclinations, the student will obtain the necessary breadth in aspects of biology, chemistry, or mathematics. While flexible, the course work usually includes genetics, molecular biology, cell biology, and biochemistry. A recommended core of courses includes:

- BIMS 503 · (4) (Y)
  Macromolecular Structure and Function
- BIMS 805 · (1-12) (S)
  Cell & Molecular Biology Projects

**Admission Policies and Procedures**

Please see the Program in Biomedical Sciences.

**Department of Cell Biology**

Jordan Hall
P.O. Box 800732
Charlottesville, VA 22908-0732
(434) 924-2732 Fax: (434) 982-3912
mds2p@virginia.edu
www.virginia.edu/cellbiology

**Degree Requirements**

**Admission** Admission into the graduate program is based on a combination of criteria including undergraduate and graduate transcripts, Graduate Record Examination scores, letters of recommendation and previous research experience. The candidate should hold a B.S., B.A., M.S., or M.A. degree in biology, biochemistry, chemistry, or one of the related sciences with a background in biology. Organic chemistry and mathematics through college algebra or trigonometry are required. Calculus and biochemistry are strongly recommended. Students are not accepted for study toward the master’s degree. A master’s degree is not required before admission to the Ph.D. program.

**Degree Requirements** The prime requirement for the Doctor of Philosophy degree in Cell Biology is the ability to carry out relatively independent research. The dissertation must represent an original and significant contribution to science and must be of merit sufficient to achieve publication in a professional peer-reviewed journal. During the preparation for the Ph.D. degree, an approved program of advanced courses is required. This program, however, may vary considerably among students, avoiding unnecessary duplication and taking into account the particular research interest of the student and his or her previous training. Upon approval of the written dissertation by the student’s dissertation advisory committee, the student will be given a final oral exam in the presence of the thesis committee and
other interested members of the departmental and University faculty. Successful completion of the dissertation defense, in addition to completion of course requirements, qualifying examination, and fourth year research presentation leads to the awarding of the Ph.D. degree.

There are no foreign language or teaching requirements for the Ph.D. although teaching opportunities are available and encouraged.

Course Descriptions

Note: The following courses are open to those who plan to work toward a Doctor of Philosophy degree in Cell Biology; admission to any of these courses requires instructor permission.

**CELL 501 - (6) (Y)**
Gross Anatomy and Development of the Human Body
Provides a thorough understanding of the structure and development of body form and organ systems. Emphasizes the relationship between structure and function and focuses on clinical applications. Includes embryology in order to present a complete picture of organs and body form from their earliest beginnings to their adult condition.

**CELL 502 - (5) (Y)**
Gross Anatomy and Development of the Human Body
Continuation of CELL 501.

**CELL 503 - (6) (Y)**
Cell and Tissue Structure
Presents an integrated picture of morphological, biochemical, and functional aspects of cells, tissues, and organs. Emphasizes fundamental concepts of the structure of cells and its relationship to function. The labs emphasize the morphological aspects of cells, tissues, and organs at both the light and electron microscopical levels.

**CELL 505 - (4) (Y)**
Methods and Applications in Biotechnology
Introduces a broad range of basic research techniques used in biomedical research. Emphasizes both theory of, and practical experience with, each procedure. The procedures include electron and light microscopy, tissue culture, autoradiography, immunocytochemistry, molecular separation and isolation techniques, and radioimmunology.

**CELL 506 - (4) (S)**
Laboratory Rotations
Graduate students carry out limited research projects in two or three department research laboratories. Emphasizes designing and executing experiments.

**CELL 508 - (4) (Y)**
Developmental Biology
Examines the basic processes and concepts involved in early development. Includes gametogenesis, fertilization, nucleo-cytoplasmic interactions, determination of primary tissues, induction, gene activity in early development, pattern formation, processes in differentiation, and abnormal development. Cross-listed as BIOL 508.

**CELL 595 - (Credit to be arranged) (Y)**
Current Topics in Cell Biology
Readings and oral presentations taken from the primary literature in Cell Biology and related fields.

**CELL 701 - (5) (Y)**
Structure and Function of the Cell
Surveys modern cell biology emphasizing the interrelationship between structure and function. Utilizes a combination of textbook readings and original literature. Emphasizes biological membranes, cell adhesion, cytoskeleton, mitosis and cell cycle, cell signaling, and cancer. Same as GSAS 812.

**CELL 802 - (3) (IR)**
Advances in Reproductive Biology
Topics include consideration of reproductive capacity and strategy, mechanisms of hormone action, cell and molecular biology of gametogenesis and gamete maturation, and events leading to fertilization. Emphasizes current advances in reproductive biology.

**CELL 803 - (Credit to be arranged) (Y)**
Advanced Gross Anatomy of the Human Body
A laboratory demonstration/dissection course systematically reviewing the gross anatomy of the human body. Emphasizes the functional and surgical aspects of the morphology.

**CELL 804 - (Credit to be arranged) (Y)**
Advanced Gross Anatomy of the Human Body
Prerequisite: CELL 502 or equivalent.
Continuation of CELL 803.

**CELL 805 - (2) (IR)**
Colloquium in Developmental Biology
 Discusses selected topics related to growth, cell differentiation, organogenesis, and regeneration. Includes current topics in developmental biology as a basis for normal and abnormal development.

**CELL 806 - (2) (IR)**
Colloquium in Cell Biology
Considers selected topics on the structure of the cell and the relationship of this structure to cellular functions focusing on the ultrastructure of animal cells and the functioning of their subcellular components. The topics emphasize current advances in cell biology.

**CELL 897 - (3-12) (Y)**
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

**CELL 898 - (3-12) (Y)**
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

**CELL 903, 904 - (1-12) (Y)**
Research in Cell Biology

**CELL 905, 906 - (1-12) (Y)**
Research in Cardiovascular Cell Biology

**CELL 907, 908 - (1-12) (Y)**
Research in Reproductive Cell Biology

**CELL 909, 910 - (1-12) (Y)**
Research in Reproductive Cell Biology and Immunology

**CELL 911, 912 - (1-12) (Y)**
Research in Reproductive Physiology

**CELL 913, 914 - (1-12) (Y)**
Research in Molecular Developmental Biology

**CELL 915, 916 - (1-12) (Y)**
Research in Molecular Biology of Connective Tissues

**CELL 917, 918 - (1-12) (Y)**
Research in Developmental Biology of the Nervous System

**CELL 921, 922 - (1-12) (Y)**
Research in Monoclonal Antibody Production

**CELL 923, 924 - (1-12) (Y)**
Research in Molecular Biology of Membranes

**CELL 997 - (1-12) (Y)**
Non-Topical Research, Preparation for Doctoral Research

**CELL 999 - (1-12) (Y)**
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Degree Requirements

In addition to fulfilling the general requirements of the Graduate School of Arts and Sciences, all graduate students in chemistry must give evidence of a satisfactory level of basic knowledge in four of the major subfields of chemistry by satisfactory performance in a specific course, or examination upon entrance. These exams stress fundamentals in analytical, biological, inorganic, organic, and physical chemistry, and chemical physics. Course programs are developed for individual students that include further study in areas where additional background is necessary.

The total credit requirements of the Graduate School are 24 credits for the master’s degree, and 72 credits for the Ph.D. degree. In chemistry, these requirements are met by a combination of lecture courses, elective or special topics courses, and topical and non-topical research courses. The specific program depends upon the student’s area of interest. Candidates for the degree of Doctor of Philosophy must pass an advanced two-part examination involving (1) an overview of his/her current research problem, including a testable hypothesis, the relationship of the project to related work of others and a detailed summary of the progress to date and (2) a critique of an assigned journal article.
related to his/her area of research. Each part is followed by a twenty-five minutes question period. The final examination for both the Master of Science and Doctor of Philosophy degrees is in the form of an oral defense of the thesis or dissertation.

A graduate degree candidate must participate in the teaching activities of the department as a graduate teaching assistant or instructor for at least one academic year. Knowledge of a foreign language is not required for a graduate degree in chemistry.

**Facilities**
The Chemistry Building, an air-conditioned, four-story structure of 160,000 square feet, houses an auditorium seating 500, lecture and classrooms, administrative offices, and laboratories for undergraduate instruction on the upper two floors. On the lower two floors are located an excellent library, main stockroom, shops, research laboratories, and faculty offices. The building, completed in 1968, is located in the science complex in the western part of the University Grounds. It contains laboratories, equipment, and other facilities for research in many of the most active fields of chemistry. A new addition completed in 1995 houses 30,000 square feet of research space for biological chemistry including an entire floor dedicated to bioanalytical and biophysical research.

**Course Descriptions**
Undergraduate chemistry, including year courses with laboratory in organic and physical chemistry (CHEM 361, 362, 371, 372 or equivalent), is a normal prerequisite for all of the following courses. Exceptions may be made by permission of the instructor in certain cases.

The student is responsible for breakage charges.

**CHEM 511 - (3) (Y)**
**Organic Chemistry III**
Prerequisite: One year of organic chemistry. In addition, one year of physical chemistry is recommended. Systematic review and extension of the facts and theories of organic chemistry; includes the mechanism of reactions, structure, and stereochemistry.

**CHEM 521 - (3) (Y)**
**Advanced Physical Chemistry I**
Studies introductory quantum mechanics; application of group theory to molecular orbital theory; and rotational, vibrational, and electronic spectra.

**CHEM 522 - (3) (Y)**
**Advanced Physical Chemistry II**
Prerequisite: Instructor permission. Studies the laws of thermodynamics and extra-thermodynamic principles; statistical mechanics; theory of reaction rates, and the interpretation of experimental kinetic data.

**CHEM 535 - (3) (Y)**
**Advanced Inorganic Chemistry I**
Prerequisite: CHEM 432 or instructor permission. Introduces the electronic structure of atoms and simple molecules, including basic concepts and applications of symmetry and group theory. The chemistry of the main group elements is described using energetics, structure, and reaction pathways to provide a theoretical background. Emphasizes applying these concepts to predicting the stability and developing synthetic routes to individual compounds or classes.

**CHEM 536 - (3) (Y)**
**Advanced Inorganic Chemistry II**
Prerequisite: CHEM 432 or instructor permission. Introduces the electronic structure of compounds of the transition metals, using ligand field theory and molecular orbital theory. The chemistry of coordination and organometallic compounds is described, emphasizing structure, reactivity, and synthesis. Applications to transformations in organic chemistry and to catalysis are examined.

**CHEM 551 - (3) (Y)**
**Instrumental Methods of Analysis**
Prerequisite: CHEM 341 or 361, or instructor permission. Utilization of modern analytical instrumentation for chemical analysis. Includes emission and mass spectroscopy, ultraviolet, visible, and infrared absorption spectroscopy, atomic absorption, electrical methods of analysis, gas chromatography, and X-ray methods. Laboratory hours.

*Note:* Specific background requirements vary for successful study of 700-level and higher courses. Students should consult with the instructor before registering for these courses.

**CHEM 701, 702 - (3) (Y)**
**Research Seminar**
Prerequisite: Instructor permission. Entering graduate students attend departmental seminars and colloquia. These lectures expose the student to a wide range of the latest theoretical and experimental topics in chemistry. Chemistry 701, 702 provides graduate students with an introduction to the theory and practice of scientific research and professional development. Issues of safety in the laboratory, literature searching, ethical conduct in research, intellectual property, entrepreneurship, federal funding agencies, job opportunities in academe, industry, and national laboratories, curriculum vitae/resumé writing, web-site creation, and effective written and oral communication skills are discussed. Students are required to attend departmental seminars and colloquia in order to learn about a broad range of current experimental and theoretical topics in chemistry. Each student will prepare at least one oral and one written presentation for the class.

**CHEM 707 - (3) (IR)**
**Topics of Current Interest and Pedagogy**
Explores current topics in chemistry unified by a specific theme. Designed to aid teachers in promotion of scientific literacy among the student population of Virginia. Emphasizes topics suitable for stimulating interest among the majority of secondary school students rather than specialized material for advanced students.

**CHEM 712 - (3) (Y)**
**Organic Chemistry IV**
Prerequisite: CHEM 511. A comprehensive survey of synthetic organic reactions and their application to the design and execution of syntheses of relatively complex organic substances.

**CHEM 715 - (3) (Y)**
**Instrumental Theory and Techniques in Organic Chemistry**
Studies the theory and application of instrumental techniques in solving organic structural problems. Topics include ultraviolet and infrared absorption spectroscopy, nuclear magnetic resonance, mass spectrometry, rotatory dispersion, and circular dichroism.

**CHEM 722 - (3) (S)**
**Reaction Kinetics and Dynamics**
Prerequisite: CHEM 521, 522, or instructor permission. Introduces the practice and theory of modern chemical kinetics, emphasizing reactions occurring in gases, liquids, and on catalytic surfaces. Develops basic principles of chemical kinetics and describes current experimental and analytic techniques. Discusses the microscopic reaction dynamics underlying the macroscopic kinetics in terms of reactive potential energy surfaces. Develops statistical theories of reactions that simplify the description of the overall reaction dynamics. Includes the transition state theory, Rice-Ramsperger-Kassel-Marcus (RRKM) theory for unimolecular reactions, Kramers’ theory, Marcus electron transfer theory, and information theory. Presents current topics from the literature and illustrates applications of basic principles through problem-solving exercises.

**CHEM 743 - (4) (Y)**
**Biological Chemistry I**
Prerequisite: One year of organic chemistry. Introduces the components of biological macromolecules and the principles behind their observed structures. Examines the means by which enzymes catalyze transformations of other molecules, emphasizing the chemical principles involved, and describes key metabolic cycles and pathways, the enzymes that catalyze these reactions, and the ways in which these pathways are regulated. Three class hours, one seminar hour.

**CHEM 744 - (4) (Y)**
**Biological Chemistry II**
Prerequisite: CHEM 743 or instructor permission. Covers three main areas: (1) the structure and function of biological membranes, (2) complex biochemical systems and processes, including photosynthesis, oxidative phosphorylation, vision, neurotransmission, hormonal regulation, muscle contraction and microtubules, and (3) molecular biology, including DNA metabolism, protein synthesis, regulation of gene expression and recombinant DNA methodology. Three class hours, one seminar hour.
CHEM 751 - (4) (Y)
Analytical Chemistry
Prerequisite: Instructor permission.
Advanced level survey of instrumental methods of analysis, theory and application of spectrochemical, electrochemical techniques; separations, surfaces, special topics, and recent developments from the literature.

CHEM 812 - (3) (Y)
Selected Topics in Organic Chemistry
Detailed treatment of specialized areas of current interest in organic and biological organic chemistry. Subject matter will vary from year to year. May be taken for credit more than once.

CHEM 814 - (3) (SI)
Chemistry of Heterocyclic Compounds and Related Topics
Prerequisite: CHEM 511.
The application of the concepts of organic chemistry, especially structure and reaction mechanisms, to the discussion of heterocyclic compounds. Emphasizes heteroaromatic compounds of nitrogen, oxygen, and sulfur. Offered as required.

CHEM 821 - (3) (SI)
Principles of Quantum Mechanics
Development of principles of quantum mechanics and application to simple systems; and discussion of angular momentum, variation method, and perturbation theory.

CHEM 822 - (3) (SI)
Chemical Applications of Quantum Mechanics
Application of quantum mechanics to atomic and molecular systems; includes molecular orbital and valence bond theory. Group theory is developed from first principles and applied to molecular systems.

CHEM 825 - (3) (SI)
Molecular Spectroscopy
Prerequisite: CHEM 521, 821, and group theory equivalent to that covered in CHEM 521 or instructor permission.
Studies basic theoretical principles of optical and radio-frequency molecular spectroscopy selected from electron spin and nuclear magnetic resonance, microwave, infrared, Raman, visible, and ultraviolet spectroscopy.

CHEM 831, 832 - (3) (SI)
Selected Topics in Inorganic Chemistry
Advanced treatment of topics of current research interest in inorganic chemistry.

CHEM 834 - (3) (SI)
Determination of Molecular Structure by Diffraction Methods
Studies the principles of X-ray, neutron, and electron diffraction by ordered solids; and the use of these phenomena in molecular structure determination.

CHEM 836 - (3) (SI)
Physical Inorganic Chemistry
An advanced treatment of inorganic chemistry emphasizing structure, physical properties, the physical techniques employed in inorganic chemistry, including ESR, NMR, Mossbauer, NQR and electronic spectroscopy, magneto-chemistry and high pressure chemistry. Application of the experimental and theoretical aspects to bioinorganic chemistry.

CHEM 845 - (3) (SI)
Enzymatic Reaction Mechanisms
Prerequisite: Instructor permission.
Studies the mechanisms of enzymatic catalysis of organic reactions, emphasizing the transformation of substrates to products rather than focusing on protein chemistry. Includes the application of physical organic techniques to the study of enzymatic reactions. Major reaction types considered include hydrolases, group transfer reactions, coenzyme-catalyzed reactions, biological redox reactions, eliminations, racemizations, and aldol cleavage reactions. Considers the regulation of enzymatic activity and the validity of current techniques of investigating enzyme catalysis.

CHEM 852 - (3) (SI)
Special Topics in Instrumental Methods
Studies recent developments in instrumentation and their significance to physical-analytical problems. Includes the theory and application of specialized techniques in analytical chemistry.

CHEM 854 - (3) (SI)
Analytical Spectroscopy
Prerequisite: CHEM 551 or instructor permission.
Studies advanced topics in optical spectroscopy as applied to analytical chemistry. Topics include fundamental principles of atomic and molecular spectroscopy, practical experimental methods including laser methods, and analytical optical methods of current research interest.

CHEM 861, 862 - (3) (SI)
Selected Topics in Advanced Physical Chemistry
Prerequisite: Instructor permission.
Selected topics in advanced physical chemistry developed to the depth required for modern research.

CHEM 897 - (1-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

CHEM 898 - (1-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

CHEM 907, 908 - (1-12) (S)
Research: Bioanalytical Studies

CHEM 911, 912 - (1-12) (S)
Research in Infrared Spectroscopy

CHEM 915, 916 - (1-12) (S)
Research in Photochemistry and Luminescence

CHEM 921, 922 - (1-12) (S)
Research in High Resolution Molecules

CHEM 923, 924 - (1-12) (S)
Research in Mass Spectrometry

CHEM 925, 926 - (1-12) (S)
Research in Bioorganic Chemistry

CHEM 927, 928 - (1-12) (S)
Research in Biochemical Studies

CHEM 941, 942 - (1-12) (S)
Research in Membrane Biochemistry

CHEM 945, 946 - (1-12) (S)
Research in Inorganic Chemistry

CHEM 949, 950 - (1-12) (S)
Research in Physical Chemistry of Surfaces

CHEM 951, 952 - (1-12) (S)
Research in Bioorganic Mechanism and Synthesis

CHEM 955, 956 - (1-12) (S)
Research in Synthetic Organic Chemistry

CHEM 959, 960 - (1-12) (S)
Research in Multistage Organic Synthesis

CHEM 961, 962 - (1-12) (S)
Research in Medicinal Chemistry

CHEM 963, 964 - (1-12) (S)
Research in Bioanalytical Studies

CHEM 965, 966 - (1-12) (S)
Research in Statistical Mechanics of Condensed Phases

CHEM 967, 968 - (1-12) (S)
Research: Biomolecular NMR

CHEM 969, 970 - (1-12) (S)
Research: Chemistry of Medicine

CHEM 971, 972 - (1-12) (S)
Research: Combinatorial Science

CHEM 973, 974 - (1-12) (S)
Research: Synthetic and Bioorganic Chemistry

CHEM 975, 976 - (1-12) (S)
Research: Analytical Chemistry of Biological Systems

CHEM 977, 978 - (1-12) (S)
Research: Bioanalytical Chemistry

CHEM 996, 997 - (1-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation advisor has been selected.

CHEM 999 - (1-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation advisor.

Seminars and Colloquia
Departmental seminars and colloquia are held on a regular basis with the presentations being given by visiting speakers and by graduate students,
research staff, and faculty of the department. Specialized research seminars and discussion groups also meet regularly to examine topics of current interest. Most graduate students are scheduled to present a departmental poster in the third year of residence and a seminar at the completion of their research.

**Lectures** Distinguished visitors present lectures regularly on a wide variety of subjects in modern chemical research. The department sponsors the endowed Burger Lectureship in Medicinal Chemistry, the Lutz Lectureship, and the Pratt Lectureship.

**Department of Classics**
401 Cabell Hall
University of Virginia
P.O. Box 400788
Charlottesville, VA 22904-4788
(434) 924-3008 Fax: (434) 924-3062
classics@virginia.edu
www.virginia.edu/classics

**Degree Requirements**

**Master of Arts** Twenty-four credits of graduate courses; translation exam in Greek or Latin; oral exam on Greek or Roman literature; written exam in Greek or Roman history; reading knowledge of either French or German; master's thesis.

**Master of Teaching** Program in Latin offered through the Curry School of Graduate Education.

**Doctor of Philosophy** Thirty credits of graduate courses in addition to those required for the Master of Arts; translation examinations in Greek and Latin; oral and written examinations on Greek and Roman literature and history; reading knowledge of both French and German; exam on special author and special field to be chosen by the candidate; dissertation; and oral defense.

**Course Descriptions**

**Classics**

**CLAS 501 - (3) (SI)**
Proseminar
Introduction to Classical philology and its methods.

**CLAS 525 - (3) (IR)**
Ancient Greek Religion
Prerequisite: Instructor permission. An introduction to the religious beliefs, practices, and life of ancient Greeks of the classical period as they are found in literature, history, architecture, and art.

**CLAS 615 - (3) (IR)**
World Mythology
An introduction to those myths from Greece and Rome that have had the greatest importance for teachers of English. The emphasis will be on the structure and recurring images in important myths, with attention to specific ways in which those are processed in the originals and then reconsidered in subsequent texts.

**Greek**

**GREE 501 - (3) (SI)**
Survey of Greek Literature to the end of the Fifth Century
Lectures with readings from Homer through Thucydides.

**GREE 502 - (3) (SI)**
Survey of Later Greek Literature
Lectures with readings from the end of the fifth century to the Second Sophistic.

**GREE 503 - (3) (SI)**
Classical Greek Prose
Studies prose selections illustrating the development of prose style in the fifth and fourth centuries B.C.

**GREE 504 - (3) (SI)**
Later Greek Prose
Studies selections from Greek authors, illustrating the development of prose style from the third century B.C. to the second century A.D.

**GREE 508 - (3) (SI)**
Greek Epigraphy
Studies the inscriptions of the ancient Greeks.

**GREE 509 - (3) (Y)**
Prose Composition
Translation from English into Greek.

**GREE 510 - (3) (SI)**
Homer
Readings from Homeric epics, with study of various Homeric problems.

**GREE 511 - (3) (SI)**
Hesiod
Reading of the Works and Days and Theogony, with study of their place in the literary tradition.

**GREE 512 - (3) (SI)**
Greek Lyric Poetry
Surveys Greek lyric forms from earliest times.

**GREE 513 - (3) (SI)**
Pindar
Reading of selections from the Odes, and study of the development of the choral lyric in Greek poetry.

**GREE 514 - (3) (SI)**
Aeschylus' Oresteia
Reading and discussion of Aeschylus' Agamemnon, Choephoroi, and Eumenides.

**GREE 515 - (3) (SI)**
Sophocles
Selected plays and their dramatic technique.

**GREE 516 - (3) (SI)**
Herodotus
Readings in the Histories.

**GREE 517 - (3) (SI)**
Euripides

Selected plays and their poetic and dramatic technique.

**GREE 518 - (3) (SI)**
Thucydides
Selections from the History of the Peloponnesian War, emphasizing the development of Greek historical prose style and the historical monograph.

**GREE 519 - (3) (SI)**
Aristophanes
Examines the history and development of Greek Old Comedy through selected plays of Aristophanes.

**GREE 520 - (3) (SI)**
New Comedy
Reading of the Dyscolus and other substantial fragments, with discussion of New Comedy, its origins and its legacy.

**GREE 521 - (3) (SI)**
Plato
Readings from selected dialogues of Plato, with study of Plato's philosophy and literary style.

**GREE 522 - (3) (SI)**
Aristotle
Reading and discussion of the Nicomachean Ethics.

**GREE 523 - (3) (SI)**
Hellenistic Poetry
Readings in the poets of the Hellenistic period.

**GREE 801 - (3) (SI)**
Seminar on Select Topics in Greek Literature

**GREE 806 - (3) (SI)**
Greek Textual Criticism

**GREE 810 - (3) (SI)**
Greek Religion
Seminar on select topics in Greek Religion.

**GREE 813 - (3) (SI)**
Greek Literary Criticism
Readings from Aristotle's Rhetoric and Poetics and Longinus.

**GREE 897 - (3-12) (S)**
Non-Topical Research, Preparation for Research
For master's thesis, taken before a thesis director has been selected.

**GREE 898 - (3-12) (S)**
Non-Topical Research
For master's thesis, taken under the supervision of a thesis director.

**GREE 997 - (3-12) (S)**
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

**GREE 999 - (3) (S)**
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.
Latin

Note: Twelve credits of Latin language courses above LATI 202 are prerequisite for all graduate courses in Latin.

LATI 501 - (3) (SI)
History of Republican Latin Literature
Lectures with readings from the beginning to the end of the Republic.

LATI 502 - (3) (SI)
History of Latin Literature of the Empire
Lectures with readings from Vergil through Juvenal.

LATI 503 - (3) (SI)
History of Medieval Latin Literature
Studies of medieval Latin literature from Boethius to Dante.

LATI 504 - (3) (SI)
Prose Composition

LATI 505 - (3) (SI)
Latin Paleography
Studies scripts and book production from antiquity to the Renaissance.

LATI 506 - (3) (SI)
Roman Comedy
Studies selected plays of Plautus and Terence.

LATI 507 - (3) (SI)
Latin Elegy
Studies selections from Tibullus, Propertius, and Ovid.

LATI 508 - (3) (SI)
Roman Satire
Studies the satiric fragments from the Roman Republic and Horace’s Sermones; the origins of Roman Satire.

LATI 509 - (3) (SI)
Roman Literary Criticism
Studies Roman literary theory, with readings from the Rhetorica ad Herennium, Cicero’s works on the principles of oratory, Horace’s Ars Poetica, and Quintilian.

LATI 510 - (3) (SI)
Lucretius
Selections from Lucretius’ De Rerum Natura and the development of Roman Epicureanism.

LATI 511 - (3) (SI)
Catullus
Studies the surviving poems of Catullus, with particular attention to questions of genre, structure, and literary history.

LATI 512 - (3) (SI)
Julius Caesar
Studies either the Bellum Gallicum or the Bellum Civile, both as literary monuments and as first-hand accounts of major events in the last years of the Roman Republic.

LATI 513 - (3) (SI)
Cicero’s Philosophical Works
Focuses on the ethical and epistemological or on the theological or political treatises.

LATI 514 - (3) (SI)
Cicero’s Rhetorical Works
Readings from the orations and from the rhetorical treatises.

LATI 515 - (3) (SI)
Sallust
Studies the historical monographs Catilina and Juvantitha in their literary and historical setting, with attention to the remains of the History of and other contemporary documents.

LATI 516 - (3) (SI)
Vergil’s Aeneid
LATI 517 - (3) (SI)
Vergil’s Eclogues and Georgics
LATI 518 - (3) (SI)
Horace’s Odes
LATI 519 - (3) (SI)
Lucy
Studies selected readings from the Ab urbe condita.

LATI 520 - (3) (SI)
Ovid’s Metamorphoses
LATI 521 - (3) (SI)
Ovid’s Love Poetry
Studies readings from the Amores, Heroïdes, Ars Amatoria, and Remedia Amoris.

LATI 522 - (3) (SI)
Tacitus
Selections from Tacitus.

LATI 523 - (3) (SI)
Petronius
Studies Petronius’ Satyricon and the development of fiction-writing in classical antiquity.

LATI 524 - (3) (SI)
Juvenal
Studies the satires of Juvenal and the development of satire among the Romans.

LATI 525 - (3) (SI)
Seneca’s Philosophical Works
Studies selected philosophical texts of Seneca, chiefly the Epistulae Morales and the nature and development of Roman Stoicism.

LATI 526 - (3) (SI)
Latin Epic after Vergil
Studies readings from Lucan, Statius, and Silvius Italicus.

LATI 527 - (3) (SI)
Apuleius’ Metamorphoses
Reading of the text and study of the work’s influence on subsequent literature and art.

LATI 528 - (3) (SI)
Christian Latin Writings of the Roman Empire
LATI 706 - (3) (IR)
Roman Religion
Examines the institutions, practices, and attitudes associated with Roman religion, focusing chiefly on aspects of Roman religion as practiced in the city of Rome itself, and devoting itself primarily to the Republican and early imperial periods. Cross listed as HIEU 706.

LATI 801 - (3) (SI)
Seminar on Select Topics in Latin Literature

LATI 806 - (3) (SI)
Latin Textual Criticism
Studies advanced problems in Latin palaeography and in the transmission of Latin texts.

LATI 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

LATI 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

LATI 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

LATI 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Drama
Drama Building, 109 Culbreth Road
University of Virginia
P.O. Box 400128
Charlottesville, VA 22904-4128
(434) 924-3326 Fax: (434) 924-1447
tsl@virginia.edu
www.virginia.edu/drama

Degree Requirements
The Master of Fine Arts Program
The M.F.A. is the appropriate terminal degree in the creative and technical disciplines in educational, regional, and community theatres. The program aims to produce artist-scholars prepared to work in today’s theatre. Every three years (in fall 2005, 2008, and so on), eighteen M.F.A. graduate students are brought together to form a company from applicants from across the country. Specialized work is tailored for the actor, the scenic designer, the costume designer, the lighting designer, the technical director, and the director. These students also collaborate in and contribute to an ensemble in study and research, creative projects and productions. As an integral part of the program, M.F.A. students are challenged to do work that tests their talents, their vision, and their training through ensemble efforts and in the larger production programs in the Department of Drama.

Areas of Concentration
M.F.A. students choose from the following areas of concentration: acting, scenic design, costume design, lighting design, technical direction, and directing.

Acting Eight actors are selected for their demonstrated acting ability, vocal and physical flexibility, and suitability to ensemble work with peers and faculty in seminars, studios, and public performance. All work is closely monitored and evaluated in order to produce serious, versatile, informed, and articulate actors. This three-year, 72-credit
Course Descriptions

DRAM 504 - (3) (O)
Early American Theatre and Drama
Prerequisite: Graduate standing or instructor permission.
A study of nineteenth-century theatre and dramatic literature in relation to the central cultural developments of the century. An examination, through the reading of nine-teenth-century comedies and melodramas as social documents, of the complex and ever-changing role(s) the theatre played in nineteenth-century American life.

DRAM 506 - (3) (IR)
Modernism in the Theatre
Prerequisite: DRAM 305, 306 or equivalent. Studies the theory, literature and mise-en-scene of the theatre during the modern era.

DRAM 507 - (3) (IR)
History of American Popular Entertainment: From Minstrelsy to Madonna
This course traces the development of popular entertainment forms from British and European roots through late modern and post-modern examples like Elvis, Madonna and Disneyland. Particular attention will be paid to popular culture and broad cultural trends.

DRAM 508 - (3) (IR)
Performance in the Postmodernism Era
Prerequisite: Graduate standing or instructor permission.
Through detailed research and the "reconstruction" of performance(s), students examine the work of contemporary theatre artists and the nature of the shift from a modern position/perspective/aesthetic to what many historians and critics regard as a post-modern one.

DRAM 555 - (3) (Y)
Performing Arts Management
Prerequisite: gradu ate standing; 12 credits in drama and/or business related courses; or instructor permission.
Examines the principles and practices of managing the not-for-profit performing arts organization. Using the theatre as a model, the course focuses on the responsibilities of the top manager within the organization, and the relationship to the artistic staff and the board of trustees.

DRAM 571 - (3) (Y)
Playwriting V
Prerequisite: nine credits of drama courses or instructor permission.
Introduces the craft of playwriting and examin-ation of exemplary works. Weekly problem exercises emphasize the development of a working way of working.

DRAM 572 - (3) (Y)
Playwriting VI
Prerequisite: DRAM 571 and instructor permission.
Analyzes the craft of playwriting. Continued study of exemplary plays and problem exer-cises, and increased emphasis on reading and discussion of student work.

DRAM 702 - (3) (IR)
Theatre Makeup
Prerequisite: graduate standing M.F.A. Program.
Research and studio practice in the design and application of theatre makeup. Empha-sizes observation and mastery of basic tech-niques and materials employed in facial analysis and the creation of juvenile, lead, character, and aged makeup.

DRAM 703, 803, 903 - (1-12) (S)
Independent Study
Independent study conducted under the supervision of a specific instructor.

DRAM 707 - (3) (IR)
Script Analysis
This course will survey dramatic literature, classical to the contemporary, with an eye toward reading scripts for the stage. We will practice methods of analysis that will enrich our understandings of the textural clues for production and of the openings and ambiguities in scripts that exciting stage interpreta-tions can play with. Beginning with Aristotle and Sophocles, we will sample major dramatic forms, looking at both “intensive” and “extensive” plays, and, finally, at the interesting com-binations of the intensive and extensive in modern theatre. We will consider poetic dra-mas, comedy, some political theatre, several classics, and very contemporary plays.

DRAM 708 - (3) (IR)
Performance: From the Modern to the Post Modern
Prerequisite: Instructor permission.
Traces the development of the modern theatre from its inception to its reputed decline and absorption into post modern performance. Special attention is paid to those individuals or theatre companies that shaped the modern/post-modern theatre worlds.

DRAM 709 - (3) (SI)
Script Analysis: Dramatic Structure and Theatrical Production
Analysis of representative play scripts to discover how structure and language support con-ceptual and stylistic choices in production.

DRAM 710 - (3) (IR)
Graphics for the Theatre
Prerequisite: graduate standing M.F.A. program.
Studies basic design communication skills which serve as the foundation for costume, scenic, lighting designers, and technical directors in collaboration with directors, designers, actors, and shop personnel. Includes basic elements of design in-line, color, texture, visual research methodology, and media techniques in drawing, painting, model making.

DRAM 713, 714 - (2) (IR)
Production Laboratory: Lighting
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of lighting design.
DRAM 716 - (3) (IR)
Lighting Design I: Elements of Design
Prerequisite: DRAM 710, 717 or instructor permission; corequisite: DRAM 718, 714.
Studies the elements of theatrical lighting design essential to the stage designer. Areas of study include script interpretation, lighting composition, color, instrumentation, graphic notation, and presentation techniques.

DRAM 717 - (3) (IR)
Principles of Technology
Prerequisite: graduate standing M.F.A. program.
Study of drafting techniques and computer aided drafting and drawing software that prepares the designer or technician to identify and communicate methods and materials relative to executing the design. Covers standards for theatrical drafting, preparation of ground plans, sections, and design elevations including both pictorial and orthographic drawings.

DRAM 718 - (3) (IR)
Digital Media for Design
Prerequisite: DRAM 717 or instructor permission.
Studies a variety of graphic software programs and computer-aided design techniques which prepares the lighting designer, scenic designer, costume designer, and technical director to identify and communicate methods and materials relative to the execution of their respective designs. Taught completely on-line with all course materials and project submissions made electronically.

DRAM 719, 819, 919 - (3-9) (Y)
Mentored Study: Lighting
Prerequisite: Instructor permission.
A guided study which gives students the opportunity to explore with a faculty member areas of lighting design and/or technology which are not contained in the established curriculum.

DRAM 723, 724 - (2) (IR)
Production Laboratory: Scenery
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of scenic designs.

DRAM 726 - (3) (IR)
Scene Design I: Design Studio-Realism
Explores the range of theatrical design styles which form the core of the designer’s visual catalog. Includes, but is not limited to, 19th- and 20th-century realistic design styles.

DRAM 728 - (3) (IR)
Scene Painting
Prerequisite: DRAM 710.
Studies the materials and methods of scenic painting and its application to conventional and non-conventional means of scenic replication for dramatic and musical stages. Includes various media used for scenic illustration, and the methods used for preparing a variety of surfaces to be painted.

DRAM 729, 829, 929 - (3-9) (S)
Mentored Study: Scene Design
Prerequisite: graduate standing M.F.A. program.
A faculty-guided exploration of scenic design and/or technology areas not covered in the established curriculum.

DRAM 733, 734 - (2) (IR)
Production Laboratory: Costume
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of costume design.

DRAM 735 - (3) (IR)
Costume Technology: Principles
Prerequisite: graduate standing M.F.A. program.
An intense study of basic execution and design techniques that enable construction techniques that enable the costume designer to translate the visual design from the sketch to the stage. Study includes basic construction techniques, same and proper equipment utilization, principles of pattern drafting, design analysis, shop organization and personnel management.

DRAM 736 - (3) (IR)
Costume Design: Research
Prerequisite: DRAM 710, 735; corequisite: DRAM 738.
Application of design principles to play scripts focusing on the examination of the special world of the play as foundation for character and character relationships.

DRAM 737 - (3) (IR)
Costume Technology: Patterning & Draping
Prerequisite: DRAM 710, 735; corequisite: DRAM 736.
Explores the fundamentals of draping and flat-patterning, the two basic systems of pattern-making upon which all patterns are based.

DRAM 739, 839, 939 - (3-9) (S)
Mentored Study: Costume
Prerequisite: graduate standing M.F.A. program or instructor permission.
A faculty-guided study in an area of costume design and/or technology not covered in the established curriculum.

DRAM 740, 840, 940 - (3-9) (S)
Mentored Study: Acting
Prerequisite: graduate standing M.F.A. program or instructor permission.
A faculty-guided study in an area of acting not covered in the established curriculum.

DRAM 741 - (2) (IR)
Movement: Exploration
Prerequisite: graduate standing M.F.A. program.
A physical and psychological approach to addressing the actor’s physical habits. Technique and explorations focus on the holistic nature of the actor as communicator and the importance of breath as initiator of sound and movement.

DRAM 742 - (2) (IR)
Movement: Stage Combat
Prerequisite: DRAM 741.
Examines the history of human violence and the forms of personal and military combat frequently used on the stage. Actors learn to perform physical aggression that is safe and dramatically effective through techniques in armed and unarmed combat. Opportunity to earn SAFD Actor/Combat certification.

DRAM 743 - (2) (Y)
Voice: Breath, Structure, Sound
Prerequisite: graduate standing M.F.A. program.
Explores the basic approaches to vocal relaxation, breath control, resonance, and projection. Includes identification and correction of vocal habits and regionalisms, and introduction of phonetics, Lessac, and Linklater vocal methods.

DRAM 744 - (2) (Y)
Voice: Tone, Speech, Text
Prerequisite: DRAM 743.
Studies the tonal aspects of sound production. Examines appropriate consonant and vowel production, and includes the phonetic analysis of text. The voice is connected to language imagery and emotion, employing textual exploration and physicalization exercises.

DRAM 745 - (2) (Y)
Acting: Impulse into Action
Prerequisite: graduate standing M.F.A. program.
Systematic evaluation of the actor’s approach to characterization. Methodology includes exercises for kinesthetic awareness, emotive connections, image formation, and action choices.

DRAM 746 - (2) (Y)
Acting: Character into Relationship
Prerequisite: DRAM 745.
Studies complex characterization and style considerations. Works from Miller, Williams, O’Neill, Ibsen, Chekhov, and Shaw serve as material for scene study.

DRAM 747, 748 - (1) (Y)
Acting: Production and Performance
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of acting.

DRAM 749 - (2) (Y)
Acting: Performance Lab
Prerequisite: DRAM 745.
A workshop exploration of original dramatic material written by graduate playwrights in residence. Focuses on short exercises for specific craft development.

DRAM 762 - (3) (SI)
Mentored Study in Sound Design
Prerequisite: graduate standing M.F.A. program and instructor permission.
Faculty-guided study in an area of sound design or technology not covered in the established curriculum.
DRAM 763, 764 - (2) (IR)
Production Laboratory: Technical Direction
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of scenic elements.

DRAM 766 - (3) (IR)
Technical Direction
Prerequisite: Graduate standing M.F.A. program.
Further technical directors’ skills through the study of advanced principles of scenery technology, construction, shop organization, purchasing, planning, and organization of crews to complete a production.

DRAM 768 - (3) (IR)
Construction
Prerequisite: Graduate standing M.F.A. program.
Further technical construction skills through the study of traditional and contemporary theories of staging, pragmatic application of scenic construction systems; including wood, fabric, plastics and steel.

DRAM 769, 869, 969 - (3-9) (S)
Mentored Study: Technical Direction
Prerequisite: Graduate standing M.F.A. program or instructor permission.
A faculty-guided study in an area of technical theatre not covered in the established curriculum.

DRAM 792 - (2) (IR)
Design: Psychology of Space, Light and Attire
Prerequisite: graduate standing M.F.A. program.
Studies design for the actor, exploring the power of the visual world and the role of the designer in shaping the world of the play in contemporary production. Projects teach the student to express concepts using the designer’s tools.

DRAM 801 - (3) (IR)
Heritage of Design
A study of significant theatrical designers who have made significant contributions to the contemporary theory and practice of costume, light, and scenic design. Scholarly research will be conducted in select historical collections and archives.

DRAM 803 - (1) (S)
Drawing for the Theatre: Accuracy through Expression
Prerequisite: graduate standing. The human form is challenging to draw, so a variety of devices that make it more easily comprehensible are employed; blind-drawing, gesture, collage, and the use of non-conventional drawing tools are examples. Expressive mark-making helps students find accuracy and allows for exploring the language of line and developing one’s own style.

DRAM 813, 814 - (2) (IR)
Production Laboratory: Lighting
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of lighting design.

DRAM 815 - (3) (IR)
Lighting Design 2: Alternative Forms
Prerequisite: DRAM 716 or instructor permission.
A continuation of DRAM 716, emphasizing alternative forms and spaces, problem solving, orchestration, and cuing.

DRAM 816 - (3) (IR)
Lighting Design 3: Special Topics
Prerequisite: DRAM 716, 815, or instructor permission.
Seminar on advanced topics in lighting design.

DRAM 823, 824 - (2) (IR)
Production Laboratory: Scenery
Prerequisite: graduating standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of scenic design.

DRAM 825 - (3) (IR)
Scenic Design 2: Design Studio-The Classics
Prerequisite: DRAM 710, 726; corequisite: DRAM 827.
Study and creation of classical period scenic design. An examination of design for classical, Shakespearean, and 16-18th century plays.

DRAM 827 - (3) (IR)
Period Decor
Prerequisite: DRAM 710; corequisite DRAM 825.
Studies period furniture and decorative arts from antiquity to the present, including cultural influences on interior design elements.

DRAM 831 - (3) (IR)
History of Dress and Textiles
Prerequisite: DRAM 736 or instructor permission; corequisite: DRAM 835 and 837 recommended.
Studies period and contemporary dress and textiles as the foundation of the designer’s creation of stage costumes. Analyzes cultural influences of the special world, the psychology of dress, period movement, and the expression of self through choice of dress. Develops investigative methodology through hands-on work with the department’s vintage clothing and textiles collection.

DRAM 833, 834 - (2) (IR)
Production Laboratory: Costume
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of costume designs.

DRAM 835 (3) - (IR)
Costume Design: Character
Prerequisite: DRAM 736; corequisite DRAM 837.
Applies design principles and psychology of dress to character development, using scripts from Shakespeare to Williams. Focuses on translation of idea and character through historical and theatrical forms in developing design concepts for contemporary audiences.

DRAM 836 - (3) (IR)
Costume Design: Production Styles
Prerequisite: DRAM 835.
Examines advanced production forms with application of design principles to fully developed projects selected from plays, musicals, opera, ballet, and film, as appropriate to the student’s progress and focus. Emphasizes versatility and experimental solutions to contemporary design challenges.

DRAM 837 - (3) (IR)
Costume Technology: Tailoring
Prerequisite: DRAM 738; corequisite DRAM 835.
Contemporary application of period cut and construction in the reproduction of period fashion for stage purposes.

DRAM 841 - (2) (IR)
Movement: Mask
Prerequisite: DRAM 741, 742.
Studies the actor’s responsibility to fill the need of the text and the concept of the actor as a “mask of the action.” Mask technique is presented as both metaphor and physical agent for character exploration.

DRAM 843 - (2) (Y)
Voice: Voice and Verse
Prerequisite: DRAM 744.
Explores speaking and acting verse, focusing on scansion, language analysis, verbal improvisation, and personalization using Berry, Rodenburg, and Wade techniques. Actors score and interpret poetic and dramatic material, integrating text analysis with emotional expressiveness. Emphasizes heightened language texts, primarily Shakespeare.

DRAM 845 - (2) (Y)
Acting: Shakespeare
Prerequisite: DRAM 745, 746.
Performers work for vocal and physical embodiment of Shakespeare’s language. Examines the mechanics and structures of poetic language and includes research and exploration of historical and contemporary approaches to Shakespearean performance.

DRAM 846 - (2) (Y)
Acting: Period Styles
Prerequisite: DRAM 745, 746, 845.
Studies the actor’s ability to make informed performance choices based on aspects of structure such as text, historical period, social moves, and production concept. Emphasizes movement in period costumes and accoutrements.

DRAM 847, 848 - (1) (Y)
Acting: Production and Performance
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of acting.

DRAM 849 - (2) (Y)
Acting: Performance Lab II
Prerequisite: DRAM 749.
A continuation of DRAM 749. Actors collaborate with graduate playwrights by developing short performance pieces.
DRAM 863, 864 - (2) (IR)
Production Laboratory: Technical Direction
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of scenic elements.

DRAM 865 - (3) (IR)
SPFX Special Effects
Prerequisite: graduate standing M.F.A. program or instructor permission.
Explores advanced techniques in special effects and the materials used to create them. Laboratory assignments establish a basic proficiency in creating special effects using methods of the 18th, 19th, and 20th centuries. Includes using a vacuum form machine, plastic foams, casting, mold making, pyrotechnics, blood, ghosts and illusions, using fire arms on stage, and atmospheric effects.

DRAM 867 - (3) (IR)
Properties
Materials and methods of stage property construction. Includes projects in molding and casting, foam sculpting, upholstery, and furniture construction.

DRAM 868 - (3) (IR)
Rigging
Prerequisite: graduate standing M.F.A. program or instructor permission.
Studies traditional and contemporary entertainment rigging systems; investigates current practices of rigging, their equipment, and the materials involved.

DRAM 897 - (3-12) (Y)
Non-Topical Research, Preparation for Research
Prerequisite: graduate standing M.F.A. program.

DRAM 898 - (3-12) (Y)
Non-Topical Research, Preparation for Research
Prerequisite: graduate standing M.F.A. program.

DRAM 906 - (3) (IR)
Thesis
Prerequisite: graduate standing M.F.A. program.
Preparation of a written thesis that corresponds to the performance, direction, or design of a production.

DRAM 913, 914 - (2) (IR)
Production Laboratory: Lighting
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in the preparation and performance of lighting design.

DRAM 915 - (3) (IR)
Lighting Design 4: Portfolio
Prerequisite: DRAM 716, 815, and 816, or instructor permission; corequisite: DRAM 906.
Critical assessment of the lighting student’s portfolio and résumé leading to the creation of a professional body of work. Tailors design and presentation projects to student’s needs.

DRAM 917 - (3) (IR)
Advanced Lighting Technology
Prerequisite: graduate standing M.F.A. program or instructor permission.
Explores advanced stage lighting technologies including MIDI show-control, automated fixture programming, complex cueing, and effect sequencing.

DRAM 923, 924 - (2) (IR)
Production Laboratory: Scenery
Prerequisite: graduate standing M.F.A. program.
Participation in the production program of the curriculum, crediting work in the preparation and performance of scenic designs.

DRAM 925 - (3) (IR)
Scene Design 3: Design
Studio—Alternative Styles
Prerequisite: DRAM 710, 726, 825, 827.
Studies advanced production forms including operas, musicals, and dance productions or ballets. Involves solving design issues directly related to music and its influence on the stage picture.

DRAM 933, 934 - (2) (IR)
Production Laboratory: Costume
Prerequisite: graduate standing M.F.A. program.
Participation in the production program of the curriculum, crediting work in the preparation and performance of costume designs.

DRAM 935 - (3) (IR)
Costume Design: Portfolio and Design
Prerequisite: DRAM 836.
Critical assessment of the student’s portfolio and résumé leading to the creation of a professional body of work. Tailors design and presentation projects to student’s needs.

DRAM 937 - (3) (IR)
Costume Technology: Crafts
Prerequisite: DRAM 837 or instructor permission.
Examines traditional and innovative products and practices used in the execution of contemporary design of accessories and special costume pieces including period, fantasy, special effects, and spectacle.

DRAM 941 - (2) (IR)
Movement: Dance
Prerequisite: DRAM 741, 742, 841.
Examines the history of social and theatrical dance, its function in a particular society, and its dramatic purpose within a play. Requires basic proficiency be demonstrated in traditional ballet, jazz, and tap technique. Choreography common to musical theatre performance is taught within each style.

DRAM 943 - (2) (Y)
Voice: Dialects
Prerequisite: DRAM 843.
Studies the dialects most commonly employed in theatre. Methodology includes practice with taped dialects, interviews with authentic dialect speakers, phonetic representation, and research into specific cultural aspects influencing structural formation and sound.

DRAM 945 - (2) (IR)
Musical Theatre Performance
Prerequisite: DRAM 745, 746, 845, 846.
Integration of song into scene work and the examination of special problems posed for the actor/singer. Focuses on character’s song presentation within the context of a musical play. Major project includes performance of a fully scripted, original 20-25 minute musical play, using the music from a major composer of the musical theatre.

DRAM 946 - (2) (Y)
Acting: Portfolio Preparation
Prerequisite: DRAM 745, 746, 845, 846.
Audition techniques and practice are examined, as is a wide-ranging repertoire of audition materials.

DRAM 947, 948 - (1) (Y)
Acting: Production and Performance
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of acting.

DRAM 949 - (2) (Y)
Acting: Performance Laboratory III
Prerequisite: DRAM 849.
Completes the work of the Performance Lab sequence. Actors develop full-length performance material with graduate playwrights.

DRAM 962 - (3) (IR)
Technical Design
Prerequisite: DRAM 867, 768, 766 or instructor permission.
Studies structural analysis for application to theatrical scenic construction with application to theatrical scenic shifting systems. Students learn basic physics concepts and employ those principles in practical terms by solving stage shifting problems. Develops pragmatic structural design approaches for technical direction and design.

DRAM 963, 964 - (2) (IR)
Production Laboratory: Technical Direction
Prerequisite: graduate standing M.F.A. program.
Participation in the production program, crediting work in preparation and performance of scenic elements.

DRAM 971 - (3) (IR)
Playwriting XI: The Full-Length Play I
Prerequisite: DRAM 771, 772, 871, 872.
A writing workshop focusing on writing a full-length thesis play.

DRAM 972 - (3) (IR)
Playwriting XII: The Full-Length Play II
Prerequisite: DRAM 771, 772, 871, 872, 971.
A writing workshop focusing on revising and completing a full-length thesis play.

DRAM 973 - (3) (IR)
Dramaturgy II
Prerequisite: Instructor permission.
Continues and expands DRAM 873, emphasizing dramaturgical projects.
**Supporting Courses**

The following are graduate courses offered in the Asia field. For further information about these courses, see the description under the appropriate academic departments.

**Asian and Middle Eastern Languages and Cultures**

AMEL 801, 802 - (1-3) (S) Independent Research: Topics in Asian and Middle Eastern Languages and Cultures

**Anthropology**

ANTH 522 - (3) (Y) Economic Anthropology

ANTH 575 - (3) (Y) Buddhism, Politics, and Power

ANTH 763 - (3) (Y) Seminar in Chinese Ethnology

ANTH 765 - (3) (Y) Asian-American Ethnicity

ANTH 766 - (3) (Y) China: Empire and Nationalities

**Architectural History**

AR H 581 - (3) (Y) Architecture of East Asia

AR H 585 - (3) (Y) World Buddhist Architecture

AR H 587 - (3) (O) Modern Japanese Architecture

**Art History**

ARTH 761, 762 - (3) (S) Research Problems in Asian Art

ARTH 962 - (3) (IR) Seminar in East Asian Art

**Asian Languages - Chinese**

CHIN 501, 502 - (3) (Y) Readings in Modern Chinese

CHIN 528 - (3) (Y) History of the Chinese Language

CHIN 581, 582 - (3) (Y) Media Chinese II

CHIN 583, 584 - (3) (Y) Topics in Chinese Literature

CHIN 585, 586 - (3) (Y) Classical Chinese Literature

CHIN 701 - (3) (Y) Advanced Reading in Modern Chinese

CHIN 702 - (3) (Y) Advanced Reading in Modern Chinese

**Scholarship Opportunities**

The East Asia Center, through the Weedon Travel Fund, offers support to students traveling abroad to do research and further language study. For additional information contact the Director, East Asia Center, 224 Minor Hall, University of Virginia, P.O. Box 400164, Charlottesville, VA 22904-4164; (434) 924-7836; eastasia@virginia.edu.
Curry School of Education
EDLF 765 - (3-6) (Y)
Comparative Education

History
HIEA 701, 702 - (3) (IR)
Traditional East Asian History
HIEA 703, 704 - (3) (IR)
Modern East Asian History
HIEA 706 - (3) (IR)
Modern Chinese History
HIEA 801, 802 - (3) (IR)
East Asian History
HIEA 811 - (3) (IR)
Traditional Chinese History
HIEA 821 - (3) (IR)
Japanese History

Politics
PLCP 551 - (3) (Y)
Government and Politics of China
PLCP 553 - (3) (Y)
Government and Politics of Japan
PLCP 563 - (3) (IR)
Politics of Vietnam
PLCP 851 - (3) (E)
Topics in Government and Politics: China
PLCP 853 - (3) (IR)
Topics in Government and Politics: Japan
PLIR 571 - (3) (Y)
China in World Affairs
PLIR 572 - (3) (Y)
Japan in World Affairs
PLIR 872 - (3) (O)
Chinese Topics in World Affairs
PLIR 873 - (3) (IR)
Japanese Topics in World Affairs

Religious Studies
RELB 525 - (3) (O)
Seminar in Japanese Buddhism
RELB 527 - (3) (O)
Seminar in Chinese Buddhism I
RELB 591 - (3) (E)
Seminar in Chinese Buddhism II
RELB 700, 701 - (3) (Y)
Readings in Japanese Buddhist Studies, I & II
RELB 702, 703 - (3) (Y)
Readings in Chinese Buddhist Texts I, II

James Wilson
Department of Economics
Dynamics Building, 2015 Ivy Road
University of Virginia
P.O. Box 400182
Charlottesville, VA 22904-4182
(434) 924-3177
www.virginia.edu/economics

Degree Requirements

Doctor of Philosophy The degree of Doctor of Philosophy is not given when a course of study or term of residence is completed, but only when the faculty is satisfied that the candidate possesses mature scholarship and thorough knowledge in the field of economics. Students are not regarded as candidates for this degree until their applications have been formally approved by the Dean of the Graduate School and the Faculty of the Department of Economics.

In addition to completing the general requirements for the degree of Doctor of Philosophy, prospective candidates must pass a preliminary comprehensive examination, which consists of a six-hour part on economic theory and two three-hour parts on each of two fields of concentration. The student is required to complete the preliminary examination within seven semesters after entering the graduate program. A dissertation proposal should be presented to the faculty within three semesters of completing the preliminary examination. The Ph.D. dissertation must be written, approved, and defended within seven years of matriculation in the program.

A detailed statement of departmental requirements for the Ph.D. may be obtained from the department secretary.

Master of Arts The candidate must complete 24 credits of course work, including Price Theory (ECON 701), the Theory of Money and Income (ECON 702) and Econometrics (ECON 771 or 772), and must write and defend a thesis. As an alternative, the student may complete the first two semesters of the Ph.D. program and pass the preliminary comprehensive examination on core economic theory and econometrics. All requirements must be completed within five years of matriculation.

The Tipton R. Snavely Prize of $3,000 is awarded triennially to the graduate student submitting the most meritorious dissertation for the Ph.D. degree in Economics.

The Thomas Jefferson Center for Studies in Political Economy, established in 1957, facilitates research activities in the department of economics. Specific activities of the center have included the sponsorship of visiting scholars and professors, the sponsorship of lectures and seminars, the award of fellowships, and the publication of research results.

The Tipton R. Snavely Graduate Economics Library is a collection of scholarly books and academic journals for use by graduate students.

Course Descriptions
ECON 507 - (3) (IR)
British Economic History Since 1850
Prerequisite: Instructor permission.
Studies the structure, performance, and policy in the British economy since 1850, focusing on the causes and consequences of Britain’s relative economic decline.

ECON 509 - (3) (Y)
Introduction to Mathematical Economics I
Prerequisite: One semester of calculus plus one additional semester of college mathematics or instructor permission.
Studies topics in univariate and multivariate calculus and linear algebra. Includes applications to the theory of economic statistics.

ECON 510 - (3) (Y)
Introduction to Mathematical Economics II
Prerequisite: ECON 509 or instructor permission.
Studies topics in the theories of difference and differential equations and dynamic optimization. Includes applications to the theory of economic dynamics.

ECON 520 - (3) (IR)
Special Topics in Economics
Prerequisite: Graduate standing and instructor permission.
Graduate students combine course work in an upper-level undergraduate economics course with additional special assignments. Because topics vary with instructor, this course may be repeated for credit.

ECON 572 - (3) (Y)
Introductory Econometrics
Prerequisite: ECON 371 or the equivalent and one semester of calculus.
Meets concurrently with ECON 372. The application of statistical methods to the testing and estimation of economic relations; the development of the linear regression model including hypothesis testing, specification, instrumental variables, generalized least squares; and introduces identification and estimation of simultaneous equation models.

ECON 701 - (3) (Y)
Microeconomic Theory I
Prerequisite: Instructor permission.
Studies the theory of consumer and producer choice. Includes partial equilibrium analysis of competitive and imperfectly competitive markets.

ECON 702 - (3) (Y)
Macroeconomic Theory I
Prerequisite: Graduate standing or instructor permission.
Introduces macroeconomic theory, emphasizing economic growth and the business cycle.
ECON 703 - (3) (Y)
Microeconomic Theory II
Prerequisite: ECON 701 or instructor permission.
Studies general equilibrium analysis, welfare economics, externalities, and public goods.

ECON 704 - (3) (Y)
Macroeconomic Theory II
Prerequisite: ECON 702 or instructor permission.
Studies advanced topics in the theory of money and income.

ECON 771 - (3) (Y)
Econometrics I
Prerequisite: Graduate standing or instructor permission.
Studies the concepts and basic techniques of probability theory and statistical inference.

ECON 772 - (3) (Y)
Econometrics II
Prerequisite: ECON 771 or instructor permission.
Development of the linear and non-linear regression models including hypothesis testing, specification, instrumental variables, generalized least squares, and asymptotic distribution theory. Includes an introduction to identification and estimation of simultaneous equation models.

ECON 791, 792 - (3) (Y)
Guided Study in Economic Theory and Policy
Prerequisite: Instructor permission.
Studies selected topics in economics.

ECON 801 - (3) (Y)
Microeconomic Theory III
Prerequisite: ECON 703 or instructor permission.
Studies advanced topics in microeconomic theory such as uncertainty, imperfect information, imperfect competition, game theory, capital theory and dynamic analysis.

ECON 803 - (3) (Y)
Advanced Economic Theory I
Prerequisite: ECON 703 or instructor permission.
Studies advanced topics in economic theory. Specific topics vary from year to year. Recent examples are models of Bayesian learning, the economics of uncertainty, and game theory.

ECON 804 - (3) (Y)
Advanced Economic Theory II
Prerequisite: ECON 703 or instructor permission.
Studies advanced topics in economic theory. Specific topics vary from year to year. Recent examples are models of financial intermediation, endogenous growth, and alternatives to expected utility theory.

ECON 805 - (3) (IR)
American Economic History
Prerequisite: Graduate standing or instructor permission.
Studies the economic evolution of the United States.

ECON 806 - (3) (IR)
Topics in Economic History
Prerequisite: ECON 805 or instructor permission.
Studies selected topics in economic history.

ECON 811 - (3) (IR)
Foundations of Modern Economic Thought
Prerequisite: Graduate standing or instructor permission.
Studies the development of classical economic thought from Adam Smith to Karl Marx.

ECON 812 - (3) (IR)
Seminar in the History of Economic Thought
Prerequisite: ECON 701 or instructor permission.
Studies topics in the history of economic thought.

ECON 815 - (3) (Y)
Economics of Labor Markets
Prerequisite: ECON 703 and 772 or instructor permission.
Introduction to labor economics, including economic aspects of employment, wages, schooling, labor unions, and discrimination.

ECON 816 - (3) (Y)
Seminar in Labor Economics and Development
Prerequisite: ECON 815 and 772.
Studies advanced topics in labor economics, emphasizing applications to developing countries. Cross-listed as ECON 852.

ECON 817 - (3) (Y)
Industrial Organization I
Prerequisite: ECON 703 or instructor permission.
Studies the industrial structure of the economy and its effects on allocation of resources.

ECON 818 - (3) (Y)
Industrial Organization II
Prerequisite: ECON 817 or instructor permission.
Advanced study of selected problems in industrial organization.

ECON 821 - (3) (Y)
International Trade Theory
Prerequisite: ECON 703 or instructor permission.
Studies the theory of international trade and analysis of the economic effects of tariffs, quotas, and other departures from free trade.

ECON 822 - (3) (Y)
International Finance
Prerequisite: ECON 702 or instructor permission.
Topics include the balance of payments, long-term and short-term capital movements, the international money market, international monetary standards, international equilibrium and the mechanism of adjustment, exchange variations, and the objectives of international monetary policies.

ECON 831 - (3) (Y)
Public Economics I
Prerequisite: ECON 703 or instructor permission.
Topics include the justifications for government activities; principles of program analysis; illustrative theoretical and empirical analysis of expenditure programs; and theories of political processes.

ECON 832 - (3) (Y)
Public Economics II
Prerequisite: ECON 703 or instructor permission.
Studies the foundations of excess burden, incidence analysis, and optimal taxation; studies of taxation; general equilibrium analysis for tax policy; and the study of tax reform.

ECON 833 - (3) (Y)
Theory of Financial Markets
Prerequisite: ECON 771 or instructor permission.
Studies the theory and operation of financial markets.

ECON 834 - (3) (Y)
Derivative Securities
Prerequisite: ECON 701, 771 or instructor permission.
Studies the theory of options pricing and other derivative assets.

ECON 835 - (3) (Y)
Monetary Economics I
Prerequisite: ECON 704 or instructor permission.
Studies selected monetary topics, emphasizing theoretical issues.

ECON 836 - (3) (Y)
Monetary Economics II
Prerequisite: ECON 704 or instructor permission.
Studies selected monetary topics, emphasizing empirical issues.

ECON 851 - (3) (Y)
Topics in Growth Theory
Prerequisite: ECON 704 or instructor permission.
Studies the issues related to economic development, emphasizing endogenous growth models. Topics include human capital, R & D, learning by doing, fiscal policy, trade, and financial development.

ECON 852 - (3) (Y)
Economics of Underdeveloped Areas
Studies advanced topics in labor economics, emphasizing applications to developing countries. Cross-listed as ECON 816.

ECON 871 - (3) (Y)
Cross Section Econometrics
Prerequisite: ECON 772 or instructor permission.
Studies econometric tools for the analysis of cross-section and qualitative data.

ECON 872 - (3) (Y)
Time Series Econometrics
Prerequisite: ECON 772 or instructor permission.
Studies econometric techniques for the analysis of economic time series.
ECON 891 - (3) Y
Applied Microeconomics Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in applied microeconomics.

ECON 892 - (3) Y
Macroeconomics Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in macroeconomics.

ECON 893 - (3) Y
Economic Theory Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in economic theory.

ECON 894 - (3) Y
International Trade and Development Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in finance.

ECON 895 - (3) Y
Public Economics Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in public economics.

ECON 896 - (3) Y
Econometrics Workshop
Prerequisite: Third-year status or instructor permission.
Studies current research in econometrics.

ECON 897 - (1-12) (S-SS)
Non-Topical Research, Preparation for Research
For master's research, taken before a thesis director has been selected.

ECON 898 - (1-12) (S-SS)
Non-Topical Research
For master's thesis, taken under the supervision of a thesis director.

ECON 995 - (3) SI
Selected Research Problems in Economics I
Advanced research into specific economic problems under detailed faculty supervision.

ECON 996 - (3) SI
Selected Research Problems in Economics II
Continuation of ECON 995.

ECON 997 - (1-12) (S-SS)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, to be taken only in the first semester after passing a field exam, and before a dissertation director has been selected.

ECON 998 - (1-12) (S-SS)
Non-Topical Research
For doctoral research, taken under the supervision of the second reader or prospective second reader.

ECON 999 - (1-12) (S-SS)
Non-Topical Research
For doctoral dissertation, taken under the supervision of the first reader or prospective first reader.

Department of English Language and Literature
219 Bryan Hall
University of Virginia
P.O. Box 400121
Charlottesville, VA 22904-4121
(434) 924-7105 Fax: (434) 924-1478
wwwengl.virginia.edu

Prospective students should be aware that the deadline for application to the graduate program in English is December 3.

Degree Requirements
Master of Arts
30 credits required. The only specifically required course is ENCR 801 (Introduction to Literary Research). This three-week course, offered in late August and graded on an S/U basis, is a practical introduction to the techniques and uses of literary scholarship, tied to the resources of the University library system. In addition to ENCR 801, the M.A. requires twenty-four credits at the 500, 700, or 800 level, taken in residence at the University and completed with a grade of B or higher. These courses must satisfy the following distribution requirements:

1) two courses, each in a different period of British literature before 1800
2) one course in the history of criticism or literary theory

A three-credit course of independent research (which may involve the writing of a thesis or preparation for an oral examination or a pedagogical project) completes the thirty-credit requirement for the degree. The Graduate School of Arts and Sciences allows no transfer credit toward the M.A. Students who receive two or more failing grades are not permitted to remain in the program.

The foreign language requirement for the M.A. is normally satisfied by passing a ninety-minute examination, administered by the appropriate language department at the University and designed to ascertain the student's ability to translate prose (with the aid of a dictionary); a satisfactory grade automatically fulfills half the foreign language requirement for the Ph.D. Students not proceeding to the doctoral program, however, may also satisfy the M.A. requirement with courses taken as undergraduates: twelve semester credits at any level with a grade of B or higher in the final six credits or a grade of B or higher in intermediate or advanced course work.

Master of Fine Arts in Creative Writing
Candidates approved by the creative writing committee must complete a 24-credit/two year program in residence at the University of Virginia. All work must be completed and the degree received within five years of beginning the program. There is no foreign language requirement. A thesis in poetry, prose, or playwriting and an oral examination are required. Deadline for applications to the M.F.A. Program and for the Hoyts Fellowships is January 1. The M.F.A. Program accepts only fall admissions.

Doctor of Philosophy (Language, Literature, and Research)
In addition to the general University requirements for the Ph.D. degree, the candidate must normally satisfy the following requirements:

I. Research Course: All entering doctoral candidates, including those who have earned a M.A. degree, must take ENCR 801, Introduction to Literary Research, a three-credit course for an S/U grade. This is usually offered at the end of August before the fall semester begins. (See Master of Arts requirements).

II. General Coursework: Doctoral candidates who come to the program without an M.A. must take twelve graded courses (at the 500, 700, 800, or 900 level) in graduate English or approved related courses, in addition to ENCR 801 in the first semester and ENGL 998 in the fall of the fourth year. These courses must be chosen to satisfy the M.A. distribution requirement. In the first semester, they enroll in three courses plus ENCR 801. In the following three semesters, they enroll in three courses plus ENGL 991, Independent Research, a place-holding course that fills out the number of fee-carrying credits required by the Graduate School of Arts and Sciences. Students must take care to enroll in a total of four ENGL 991 courses; the department provides guidelines to help plan enrollment for the right combinations of credits.

Normally, students who enter the doctoral program with the M.A. degree in hand will be allotted the equivalent of a year's course credits, and will enroll in six graded courses at the 500, 700, 800, or 900 level, plus ENCR 801 and ENGL 998. These "M.A. transfer" students are required to take two ENGL 991 fee-carrying courses.

III. Additional Coursework, Contiguity, and Seminar Requirements: All doctoral candidates audit two courses during the third year (or the year after full-time coursework is completed). In addition, students take ENGL 998, the Dissertation Seminar, during the fall of their fourth year (or the fall after taking the oral examination and before the dissertation presentation). The entire record of a doctoral student's coursework (including audits or transfer...
German or Latin. The second language may be French, German, Italian, Spanish, Russian, Latin, or Greek. (Students who wish to pursue their research in the medieval period must pass the locally administered Latin examination.) For the second language, the department also considers petitions to substitute a language not mentioned above, but appropriate to the candidate’s field of study. Under the two language option, the candidate demonstrates “reading knowledge” of the languages by passing a ninety-minute examination in each, administered by the appropriate language department at the University and designed to ascertain the student’s ability to translate prose (with the aid of a dictionary). The full foreign language requirement for the Ph.D. must be completed before the student is permitted to take the doctoral oral examination. Students may not satisfy the foreign language requirements through qualifying examinations taken at other universities.

VI. Foreign Language: Demonstrate either a “reading knowledge” of two languages or a “mastery” of one. The candidate may demonstrate “mastery” by either
A. achieving passing grades in two graduate seminar courses in French or German literature offered in the foreign language itself (not in translation) and taken at the University of Virginia. Such courses, which may also be counted toward completion of the course requirements for the Ph.D. in English, must be approved in advance by the Director of Graduate Studies, or
B. passing a two-hour examination (administered by the language department in question) designed to ascertain the student’s ability to read literary and critical texts in the foreign language (with the aid of a dictionary) and to write discursively in that language. Under the two language option, one of the languages offered must be French, German or Latin. The second language may be French, German, Italian, Spanish, Russian, Latin, or Greek. (Students who wish to pursue their research in the medieval period must pass the locally administered Latin examination.) For the second language, the department also considers petitions to substitute a language not mentioned above, but appropriate to the candidate’s field of study. Under the two language option, the candidate demonstrates “reading knowledge” of the languages by passing a ninety-minute examination in each, administered by the appropriate language department at the University and designed to ascertain the student’s ability to translate prose (with the aid of a dictionary). The full foreign language requirement for the Ph.D. must be completed before the student is permitted to take the doctoral oral examination. Students may not satisfy the foreign language requirements through qualifying examinations taken at other universities.

VII. Pedagogy: Gain teaching experience by assisting with instruction of undergraduate courses. Second year Ph.D. students enroll in ENPG 885 concurrently with their teaching assignment in a historical survey or Shakespeare lecture course. The requirements of this course consist of staff meetings and class preparation, and it fulfills 3 of the total semester credits required for the Ph.D. coursework. Students also participate in systematic training in writing instruction.

For more information concerning these degree programs, contact the Director of Graduate Studies, Department of English, 219 Bryan Hall, University of Virginia, P.O. Box 400121, Charlottesville, VA 22904-4121; wwwengl.virginia.edu/graduatestudents.

Course Descriptions
Certain graduate courses are offered in alternate years or are temporarily suspended when the instructor is on leave of absence or for other reasons. The program of course offerings is available in early May, on application to the department. With the permission of the Director of Graduate Studies, courses offered by other departments may be allowed toward an advanced degree in English.

Prerequisite to courses numbered 801 to 899: the bachelor’s degree, with a major in English or its equivalent of 24 credits of English courses above the required level. Prerequisite to courses numbered 901 to 999: the M.A. degree in English, or permission of the instructor and the Director of Graduate Studies.

Creative Writing
ENWR 531, 532 • (3) (Y)
Advanced Poetry Writing
Prerequisite: Instructor permission; limited enrollment. Students should submit a sample of their writing well in advance of the first class meeting. Intensive work in poetry writing, for students with prior experience. May be repeated with different instructor.

ENWR 541, 542 • (3) (IR)
Playwriting
Prerequisite: Instructor permission; limited enrollment. 541 is prerequisite for 542. Intensive study of one-act plays by such masters as Chekhov, Pirandello, and Synge, with particular attention to character and context and to scene construction. Each student writes two one-act plays.

ENWR 551, 552 • (3) (Y)
Advanced Fiction Writing
Prerequisite: Instructor permission; limited enrollment. Students should submit a sample of their fiction well in advance of the first class. A course for advanced short story writers. Student manuscripts are discussed in individual conferences and in class. May be repeated with different instructor.

ENWR 561 • (3) (IR)
Scriptwriting
Prerequisite: Instructor permission. Explains film, television, and radio production values with weekly exercises in the grammar, composition, and writing of screenplays, radio drama, literary adaptation, documentaries, and docudrama. Selected scripts may be produced by the drama department.

ENWR 731, 732 • (3) (Y)
Advanced Poetry Writing
Graduate-level poetry writing workshop for advanced writing students. A weekly 2.5 hour workshop discussion of student poems.

ENWR 751, 752 • (3) (Y)
Fiction Writing
Prerequisite: Instructor permission. Limited enrollment. 751 is prerequisite for 752. A course devoted to the writing of prose fiction, especially the short story. Student work is discussed in class and in individual conferences. Parallel reading in the work of modern novelists and short story writers is required.

ENWR 801 • (3) (Y)
Independent Writing Project
Prerequisite: Permission of the chair. Intended for graduate students who wish to do work on a creative writing project other than the thesis for the Master of Fine Arts degree under the direction of a faculty member.

ENWR 895, 896 • (3) (Y)
M.F.A. Thesis
The project must comprise a substantial body of original writing—80 pages of fiction (one long or two or three short stories), a full-length play or two one act plays, or a collection of poems (approximately 48 pages); and it must, in the opinion of the faculty, be of publishable quality, comparable to the literature taught in other courses offered by the department.
ENWR 901 - (3) (S)
Research in Creative Writing
Research in creative writing for M.F.A. students.

Medieval Languages and Literature
ENMD 501 - (3) (IR)
Introduction to Old English
Studies the language and literature of Anglo-Saxon England.

ENMD 505, 506 - (3) (IR)
Old Icelandic
Introduces the language and literature of medieval Scandinavia; readings from the Poetic Edda and the sagas.

ENMD 520 - (3) (IR)
Beowulf
Prerequisite: ENMD 501 or equivalent. A reading of the poem, emphasizing critical methods and exploring its relations to the culture of Anglo-Saxon England.

ENMD 812 - (3) (SI)
Fourteenth-Century Literature
Surveys the major writers and genres, excluding Chaucer.

ENMD 813 - (3) (SI)
Medieval Transitions to the Renaissance
English and Scottish literature from Chaucer to the sixteenth century.

ENMD 825 - (3) (SI)
Chaucer I
Studies The Canterbury Tales and their backgrounds.

ENMD 826 - (3) (SI)
Chaucer II
Studies Troilus and Criseyde, the early poems, and their background.

ENMD 850 - (3) (SI)
Medieval Romance
Studies Middle English and Continental romance.

ENMD 881 - (3) (Y)
Backgrounds to Medieval Literature
Introduces the major texts and concepts of European Christian humanism.

ENMD 883 - (3) (SI)
Prolegomena to Medieval Literary Research
Introduces research tools and methods for the student of medieval literature.

ENMD 885 - (3) (Y)
Mapping the Middle Ages
Surveys literature, art, and culture in Western Europe from late Antiquity to the invention of printing, using a selection of major literary texts as a focal point.

ENMD 905 - (3) (SI)
Studies in Early English Philology
Prerequisite: ENMD 501 or equivalent. Studies the developing structure of Old and Middle English with special attention to syntax and dialectology. Includes English paleography of the period 900-1500.

ENMD 922 - (3) (SI)
Piers Plowman
An intensive study of the poem and its cultural tradition.

ENMD 924 - (3) (Y)
Studies in Chaucer
A critical study of Chaucer's narrative art, including questions of genre, relationship of narrator to audience, techniques of characterization, and the use of sources.

ENMD 981 - (3) (Y)
Studies in Old English I

ENMD 983, 984 - (3) (SI)
Studies in Middle English I, II
Topics in recent years have included the Gawain-poet, medieval subjectivity and voyeurism.

ENMD 991 - (3) (Y)
Research in Medieval Studies

The Renaissance in England
ENRN 811 - (3) (Y)
Renaissance Poetry
Studies the theory and practice of lyric and epic poetry in 16th-century England, with some brief glances at other forms: romance, epylion, and verse essay.

ENRN 812 - (3) (IR)
Early Seventeenth-Century Poetry
An intensive study of style and tone in the poetry of Donne, Jonson, Herbert, and Marvell, with some consideration of poems by Crashaw, Vaughan, and the cavaliers.

ENRN 820 - (3) (IR)
Spenser
Studies Faerie Queene and the minor poems.

ENRN 821. 822 - (3) (Y)
Studies in Shakespeare I, II
Topics vary annually. Recent examples are “Gender and Genre in Shakespeare” and “Shakespeare’s Histories and Roman Plays.”

ENRN 827 - (3) (IR)
Milton
An intensive study of Paradise Lost and Samson Agonistes.

ENRN 840 - (3) (IR)
Elizabethan Drama 1585-1642
Surveys English drama (exclusive of Shakespeare) from Kyd and Marlowe to Tourneur and Ford.

ENRN 870 - (3) (IR)
Renaissance Prose
Surveys rhetorical projects and postures from humanist advocacy to the anti-rhetorical pose of Montaigne; considers the development of English prose style from the early Tudor period to the era of Milton. Includes Erasmus, More, Castiglione, Montaigne, Sidney, Nashe, Jonson, Bacon, Browne, and Milton.

ENRN 881 - (3) (IR)
The Idea of the Renaissance
Neoplatonists, Protestants, skeptics, empiricists, princes, pedagogues, painters, poets: this course explores Renaissance culture in search of an idea of the period that is both descriptive and explanatory.

ENRN 920 - (3) (IR)
Shakespeare
Studies the later plays of Shakespeare, including problem comedies, late tragedies, and last plays. Some attempt is made to describe the characteristics of the plays as a group, but the emphasis is on criticism of the individual plays.

ENRN 924 - (3) (IR)
Spenser
The Faerie Queene and minor poems.

ENRN 927 - (3) (IR)
Milton
Selected topics in poetry and prose.

ENRN 991 - (3) (Y)
Research in the Renaissance

Restoration and Eighteenth-Century Literature
ENEC 540 - (3) (IR)
English Drama 1660-1800
Surveys representative plays and dramatic developments from 1660 to 1800. Potential authors include Etherege, Dryden, Behn, Wycherley, Congreve, Centlivre, Gay, Fielding, Goldsmith, and Sheridan.

ENEC 811 - (3) (IR)
English Literature of the Restoration and Early Eighteenth-Century
Surveys representative writers, themes, and forms of the period 1660-1740. Among the authors typically read are Dryden, Butler, Rochester, Etherege, Bunyan, Behn, Defoe, Swift, Gay, Pope, and Haywood.

ENEC 812 - (3) (IR)
English Literature and the Late Eighteenth-Century
Surveys representative writers, themes, and forms of the period 1740-1800. Among the authors typically read are Johnson, Boswell, Gray, and Burney.

ENEC 850 - (3) (Y)
Eighteenth-Century Prose Fiction
Studies prose fiction in the 18th century. Authors include Defoe, Haywood, Richard- son, Fielding, Burney, Sterne, and Austen.

ENEC 881, 882 - (3) (E)
Topics in Eighteenth-Century Literature
Topics vary and recently include “From Classic to Romantic” and “Eighteenth-Century Poetry.”

ENEC 981, 982 - (3) (Y)
Studies in Eighteenth-Century Literature I, II
Topics vary, focusing on a theme, genre, or group of writers.

ENEC 991 - (3) (Y)
Research in Restoration and Eighteenth Century

Nineteenth Century Literature
ENNC 811 - (3) (IR)
The Romantic Period
The poetry and prose of the Romantic period.
ENNC 814 - (3) (IR)
**The Victorian Period**
A critical survey of selected works in poetry and fiction. Attention to developments in ideas, form, and literary theory of the Victorian period.

ENNC 831 - (3) (IR)
**Victorian Intellectual Prose**
Surveys the writings of Carlyle, Mill, Macauley, Newman, Arnold, Ruskin, Pater, and Wilde.

ENNC 851 - (3) (IR)
**The English Novel II**
Novelists studied include Dickens, Eliot, the Brontës, and Hardy.

ENNC 852 - (3) (IR)
**The Late Victorian Novel 1850-1914**
Critical discussion of selected novels of the period.

ENNC 855 - (3) (IR)
**Literature of the Empire**
Literature dealing with the British Empire from Beckford to Kipling.

ENNC 883 - (3) (IR)
**Topics in Nineteenth-Century Literature**
Topic varies from year to year.

ENNC 950 - (3) (IR)
**Studies in Nineteenth-Century Fiction**
Studies topics in the relation between novelistic techniques and the history of ideas. Works include both continental and English novels.

ENNC 981, 982 - (3) (IR)
**Studies in Romanticism I, II**
Intensive study of one or two writers, e.g., Blake and Wordsworth, Keats and Byron.

ENNC 983, 984 - (3) (IR)
**Studies in Victorian Literature I, II**
Topics vary from a focus on major writers (e.g., Browning and Arnold), to a consideration of the aesthetic movement and its influence.

ENNC 985, 986 - (3) (IR)
**Nineteenth-Century Studies I, II**
Topics have included Victorian discursive prose and intensive study of Shelley and Tennyson.

ENNC 991 - (3) (IR)
**Research in Nineteenth-Century Literature**
*American Literature to 1900*

ENAM 802 - (3) (Y)
**American Studies Colloquium I**
*Prerequisite: Admission to the American Studies M.A. Program.*
Introduces students to American Studies’ theory, method, and practice, and using modern technologies for the acquisition, analysis, and distribution of information.

ENAM 803 - (3) (Y)
**American Studies Colloquium II**
*Prerequisite: Admission to the American Studies M.A. Program.*
Focuses on the construction of various hypertext projects in American Studies. Past projects have included hypertext presentations of classic American texts like de Tocqueville’s *Democracy in America* or on continuing explorations of powerful symbolic spaces like the U.S. Capitol building.

ENAM 810 - (3) (IR)
**Early American Literature**
Surveys American literature to 1840 designed to introduce the literature of the Colonial and early National periods, and to examine the intellectual and literary backgrounds of nineteenth-century American literature.

ENAM 813 - (3) (IR)
**Early African American Literature**
Surveys pivotal moments and texts in the history of African-American prose, from 1760, the date of Briton Hammon’s “Narrative of Uncommon Sufferings to 1903, the year of W. E. B. DuBois’s *The Souls of Black Folk.*

ENAM 815 - (3) (IR)
**American Romanticism**
Studies romantic thought and art in the nineteenth century.

ENAM 824 - (3) (IR)
**Major American Authors**
Studies the work of one or two major writers within a precise historical context. A recent pair was Hawthorne and Melville.

ENAM 830 - (3) (IR)
**American Poetry of the Nineteenth Century**
Studies selected poets of the century, their media, their audiences, and their reputations. Coverage will be broad, with some emphasis on Bryant, Longfellow, Lowell, Emerson, Whitman, Dickinson, and Crane.

ENAM 836 - (3) (IR)
**African-American Poetry**

ENAM 853 - (3) (IR)
**Nineteenth-Century Fiction**
Studies form and technique in the American novel to 1900.

ENAM 854 - (3) (IR)
**Studies in American Fiction**
Analyzes the writings of major authors approached through the consideration of such specific topics as historical romance, Gothic romance, and American mythmaking.

ENAM 885 - (3) (IR)
**American Folklore**
Studies the problems of definition, origin, collection, and analysis of the main genres of folklore in America, both narratives and songs. Cross-listed as ANTH 732.

ENAM 888 - (3) (Y)
**Literature of the South**
Surveys the literature of the American South from Thomas Jefferson’s Notes on the State of Virginia to such contemporary writers as William Styron and Walter Percy.

ENAM 910 - (3) (IR)
**Early American Literature**
Advanced work in Early American literature.

ENAM 980 - (3) (IR)
**Studies in African-American Literature**
The topics will vary (e.g., the writer and audience, movements in the literature, an individual writer or group of writers, folk traditions, and the literature and literary relations with writers in the U.S.A. or in other countries).

ENAM 981, 982 - (3) (Y)
**Seminar in American Literature I, II**
Topics range from the colonial period to the cultural influence of pragmatism.

ENAM 991 - (3) (Y)
**Research in American Literature**
*Modern and Contemporary Literature*

ENMC 811 - (3) (IR)
**American Literature 1912-1929**
Studies literary modernism in the United States.

ENMC 815 - (3) (IR)
**Literature of the Americas**
A comparative study of major fiction writers of North, Central, and South America in the past 40 years.

ENMC 816 - (3) (IR)
**Contemporary American Writers**
Studies recent U.S. writing in various genres.

ENMC 830 - (3) (IR)
**American Poetry of the Twentieth Century**
A historical survey of major figures and movements from Frost and Pound to the present day.

ENMC 831 - (3) (IR)
**British Poetry of the Twentieth Century**
Studies in the twentieth-century sensibility: distortions and other tensions in the imaginative worlds of Hopkins, Yeats, Eliot, and Auden.

ENMC 833 - (3) (IR)
**Contemporary American Poetry**
Studies selected poets from the 1940s to the present, including Lowell, Jarrell, Plath, Ginsberg, and others.

ENMC 840 - (3) (IR)
**Drama of the Twentieth Century**
Surveys European and American drama as well as work from other regions. Focuses on reactions against realism, examining expressionism, surrealism, epic theater, absurdism, and the rise of ethnic and other minority playwrights in the second half of the century. Studies works by Strindberg, Synge, Pirandello, Brecht, Lorca, Beckett, Kennedy, Churchill, Wilson, Stoppard, Kushner, and others.

ENMC 850 - (3) (IR)
**Twentieth-Century Fiction**
Studies British, American, and Continental masterpieces, with attention to the new ideas and forms in twentieth-century fiction. Writers include Proust, Joyce, Mann, Lawrence, Faulkner, Kafka, Gide, Beckett.
ENMC 851 - (3) (IR)
Twentieth-Century American Fiction
Emphasis varies, depending on the instructor, from earlier to later writers in the century.

ENMC 852 - (3) (IR)
The British Novel in the Twentieth Century
Studies of major novels from James to Conrad, Joyce, Lawrence, Forster, Woolf, and Beckett.

ENMC 853 - (3) (IR)
Major Modern Novelists
Studies several works by a few modern novelists, such as Lawrence, Woolf, Mann, and Beckett.

ENMC 856 - (3) (E)
Problems in Post-Modern Fiction
Studies the theory and practice (chiefly the latter) of postmodern fiction, comparative and interdisciplinary in scope, including such theorists as Derrida, Barthes, and Sontag; and such authors of fiction as Calvino, Coover, Butler, Pynchon, Kundera, Hawkes, Berger, Coetzee, Eco, with the likes of Kafka and Borges as background.

ENMC 857 - (3) (IR)
African-American Fiction
Studies the African-American novel from William Wells Brown to Toni Morrison, including Jean Toomer, Richard Wright, and Ralph Ellison, among others.

ENMC 881 - (3) (IR)
African-American Literature
Readings in African-American poetry, prose, and fiction of the twentieth century.

ENMC 884 - (3) (IR)
Modernism and Mass Culture
Examines various literary, theoretical and historical attempts to understand the relationship between high art and mass culture in the modern period.

ENMC 886 - (3) (IR)
The Harlem Renaissance: African-American Writing Between the Wars
Examines the cultural and artistic history of the period. Why was it called a "renaissance"? Was Harlem a geographic or imaginative world? The framing of documents of the period are discussed (Alain Locke's The New Negro, Hughes' The Negro and the Racial Mountain, and Wright's Blueprint for Negro Writing, most especially). Includes works of the major authors (Toomer, Hughes, Hurston, Brown, Wright, and McKay), focusing on the major themes (the new negro, the folk, the idealization of Africa, the sense of the Jazz Age) as viewed from within the music.

ENMC 930 - (3) (IR)
Contemporary African Poetry
Concentrates on American experimental writing since 1970, examining important influences (Stein, Zukofsky, Cage, New American Poetry and Ashbery) as well as various contemporary poets.

ENMC 981, 982 - (3) (Y)
Studies in Twentieth-Century Literature I, II
Topics have included Postmodern Fiction and Theory, Faulkner, Women and Cultures of Modernism, Yeats and Joyce, Modernism and the Invention of Homosexuality.

ENMC 985, 986 - (3) (E)
Seminar in Comparative Literature I, II
Recent topics include the poetry of Rilke, Valery, and Stevens and the literature of the Spanish Civil War.

ENMC 991 - (3) (Y)
Research in Twentieth-Century Literature

Genre Studies
ENGN 831 - (3) (SI)
The Lyric Genre
Surveys English lyric poems from Chaucer to Auden; designed to isolate what is lyrical (i.e., unprosaic, musical, aesthetic, reflective, egotistical, or sublime) in this body of literature.

ENGN 840 - (3) (SI)
Drama From 1660 to the Late Nineteenth Century
Studies drama in England, from Dryden and Congreve, to Wilde and Shaw.

ENGN 881 - (3) (IR)
Reason and Sensibility in the Novel
First of four courses, each of which may be taken independently; surveying major issues and terms in the history of the novel. Studies the relation between aesthetic and intellectual concerns of the period ca. 1750-1820 and the development of forms and techniques. Texts are drawn from English and Continental fiction. Authors include Diderot, Goethe, Richardson, Scott, and Sterne.

ENGN 882 - (3) (IR)
Realism
Authors studied include Stendhal, Balzac, Dickens, Flaubert, Dostoievsky, and Tolstoy.

ENGN 883 - (3) (IR)
Naturalism and the Early Modern
Authors studied include Hardy, Zola, Chekhov, Mann, Proust, and D.H. Lawrence.

ENGN 884 - (3) (IR)
Elaborations of the Modern
Authors studied include Breton, Faulkner, Malraux, Mann, Svevo, and Woolf.

ENGN 981, 982 - (3) (SI)
Seminar in Literary Genres I, II
Topics range from comedy as an art form to a study of various approaches to the novel.

Criticism and Theory
ENCR 565 - (3) (IR)
Books as Physical Objects
Surveys bookmaking over the past five centuries. Emphasizes analysis and description of physical features and consideration of how a text is affected by the physical conditions of its production.

ENCR 580 - (3) (IR)
Queer Theories and Queer Practices
Introduces "queer theory" through an examination of key theoretical texts (e.g., Foucault, Sedgwick, Butler) and several exemplary practices, which vary each semester.

ENCR 801 - (3) (Y)
Introduction to Literary Research
Introduces UVa's research resources and the needs and opportunities for their use. The library and its holdings are explored through a series of practical problems drawn from a wide range of literary subjects and periods. Required of all degree candidates in the M.A. and Ph.D. programs.

ENCR 860 - (3) (Y)
Criticism in Theory and Practice
Studies critical theories and the kinds of practical criticism to which they lead.

ENCR 861 - (3) (E)
An Introduction to Modern Literary Theory and Criticism
Studies 20th-century theoretical writings, focusing on intellectual movements such as Marxism, Psychoanalysis, Structuralism and Post-Structuralism, and to influential thinkers such as Barthes, Bakhtin, Derrida, Kristeva, and Butler.

ENCR 862 - (3) (IR)
Critical Theory Since Plato
A historical survey of major theories about the nature and function of literature from antiquity to the present.

ENCR 863 - (3) (IR)
Twentieth-Century Criticism
Surveys modern critical theory and practice.

ENCR 867 - (3) (IR)
Feminist Criticism
Introduces the varieties of feminist criticism practiced today, with reference to its already complex history. Explores prominent examples of psychoanalytic, linguistic, Marxist, and historical modes of feminist criticism. Students compare opposing readings of particular texts, and, in a final essay, apply the methods of a critic or school of their choice.

ENCR 865 - (3) (E)
Introduction to Textual Criticism and Scholarly Editing
Studies the transmission of texts over the past five centuries and examines theories and techniques of editing literary and non-literary texts, both published and unpublished.

ENCR 981, 982 - (3) (Y)
Seminar in Critical Theory I, II
Topics vary from year to year.

Special Topics
ENSP 581 - (3) (Y)
Film Aesthetics
Studies film as a work of art produced by cinematic skills and valued for what it is in itself. Emphasizes major theoretical works and analyzing individual films. Studies films with reference to the techniques and methods that produce the "aesthetic effect" style, and the problems of authorship arising out of considerations of style and aesthetic unity.
ENSP 583 - (3) (Y)
Literature and the Film
Studies the relationship between the two media, emphasizing the literary origins and backgrounds of film, verbal and visual languages, and the problems of adaptation from novels and short story in the film. Seven to nine novels (or plays) are read and analyzed with regard to film adaptations of these works. Film screenings two to two and one half hours per week outside of class.

ENSP 591, 592 - (3) (S)
Literary Journal Editing
Prerequisite: Instructor permission. This course, organized around the literary journal Meridian (which is sponsored by the English department’s M.F.A. program) is designed to involve students in every aspect of literary journal production—from selecting and editing manuscripts to layout/design; from grant writing and promotion to final distribution. Along with editing and relevant research, students will write book reviews, conduct interviews, and produce articles to be published in connection with the release of each issue of the journal.

ENSP 614 - (1) (Y)
Using Professional Essays to Teach Writing
An examination of selected major twentieth-century essays as models to teach style and structure in essay writing to students. Selected authors may include E.B. White, George Orwell, Joan Didion, Alice Walker, and others.

ENSP 618 - (1) (Y)
Modern Novel I
An examination of works by William Faulkner, Ernest Hemingway, and Gabriel Garcia Marquez. This course will examine the central themes and strategies used by the most distinguished twentieth-century novelists and will consider ways in which those strategies survive today in the modern novel and in other forms of writing.

ENSP 623 - (1) (Y)
Modern Novel II
Through the examination of Mrs. Dalloway and A Portrait of the Artist as a Young Man, participants will understand the influence of these two writers on twentieth-century fiction and contemporary writing.

ENSP 852 - (3) (IR)
Nineteenth- and Twentieth-Century Women Writers
Studies the works of George Eliot, Jane Austen, Charlotte Brontë, Emily Brontë, Emily Dickinson, Virginia Woolf, Doris Lessing, Willa Cather, Edith Wharton, and Sylvia Plath, and an investigation into feminist critical perspectives. Readings include four novelists and one poet from each of the nineteenth and twentieth centuries, in order to establish both developments and interconnections in considerations of female authorship and recurrent themes in the works.

ENSP 870 - (3) (IR)
Special Topics in Pedagogy
Seminar in Pedagogy. Topics may vary from one course offering to the next.

ENSP 880 - (3) (SI)
Modern Poetry and Visual Art
Investigates what painting, sculpture and architecture have meant to poets of the nineteenth and twentieth centuries, with discussion of their poetry in relation to the aesthetics of the visual arts, art history, and art criticism. Readings from Keats, Rossetti, Gautier, Rilke, Stevens, Prevert, Quasimodo, Williams, Jarrell, Wilbur and others—illuminating the experience of works by such artists as Donatello, Botticelli, Brueghel, Michelangelo, Delacroix, Degas, and Picasso. (Cross-listed as ARTH 880.)

ENSP 882 - (3) (IR)
The Literary Use of the Bible
Introduces the contents of scripture. Topics include the saving history, the Mosaic Torah, the Biblical offices, the doctrine of the Word of God, and the nature of a canon.

ENSP 955 - (3) (SI)
Society, Character, and Revolution in the Novel
Studies the alterations which traditional realistic assumptions underwent in the period 1870-1925. Special attention is given to Hardy and Conrad.

ENSP 982 - (3) (Y)
Special Topics in Criticism
Seminar in criticism. Topics may vary from one course offering to the next.

Language Study
ENLS 805 - (3) (SI)
Language Change and Literary Study
Introduces the study of change in English from Old English to the present, emphasizing the literary language.

Pedagogy
ENPG 880 - (3) (Y)
Teaching Composition
A course for college teachers of expository writing that includes the arts of rhetoric, logic, and style with some emphasis on teaching strategies.

ENPG 882 - (2) (IR)
Workshop in Teaching Composition
A seven-week seminar on the arts of teaching and writing, with emphasis on solving problems of assignments, grading papers, management of a class, teaching style, and forms of discourse. Limited to eight graduate instructors; preference is given to candidates for the pedagogy degree.

ENPG 883 - (2) (SI)
Workshop in Teaching Literatures
Designed for graduate instructors teaching ENLT courses. Focuses on theories of criticism and psycholinguistics, discussing how students read and understand belletristic writing. Topics include course objectives, texts, classroom techniques, and assignments, specific issues, and problems that arise in undergraduate classes. Limited enrollment, with preference given to candidates for the pedagogy degree.

ENPG 885 - (3) (S)
Literature Surveys
Weekly workshops with faculty and teaching staff of the 300-level lecture courses, ENGL 381, ENGL 382 and ENGL 383 and ENRN 321 and ENRN 322. Second-year Ph.D. students in English enroll in this course once during the semester in which they lead a discussion section of a lecture course.

Miscellaneous English
ENGL 895 - (3) (Y)
M.A. Thesis Research
A candidate for the M.A. degree in English may choose to undertake a substantial thesis of about 15,000 words under the sponsorship of a member of the graduate faculty in English. Any candidate interested in undertaking such a project for three credits should draw up a detailed proposal, secure the approval of one faculty member willing to serve as supervisor, and present the approved proposal before registration to the Director of Graduate Studies in English. This course may be taken in either the fall or the spring semester; it is not available during the summer session.

ENGL 897 - (3-12) (Y)
Non-Topical Research, Preparation for Research
Students taking this course are expected to prepare for their M.A. oral examination and begin reading for doctoral examinations.

ENGL 995 - (3) (Y)
Special Projects in English
Independent study under faculty supervision for a limited number of superior doctoral students doing intensive research on a subject not covered in the usual courses. Requires a detailed outline of the project, and written permission from the student’s faculty supervisor and the Director of Graduate Studies. Only one project may be offered for credit for the Ph.D.

ENGL 997 - (3-12) (Y)
Non-Topical Research, Preparation for Doctoral Research
Students taking this course are expected to prepare for their preliminary qualifying oral examinations for the doctorate.

ENGL 998 - (3) (Y)
Advanced Literary Research
Designed for students who are at or near the beginning of the dissertation writing process. Addresses the problems most often encountered by students as they begin to tackle the dissertation. Much of the course is spent evaluating and critiquing drafts of chapters.

ENGL 999 - (3-12) (Y)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.
Department of Environmental Sciences
Clark Hall
University of Virginia
P.O. Box 400123
Charlottesville, VA 22904-4123
(434) 924-7761 Fax: (434) 982-2137
www.evsc.virginia.edu

This basic-research-oriented department offers the graduate student a multidisciplinary education in the environmental sciences with a program that requires a fundamental background in the physical and biological sciences and mathematics. Graduate students are expected to obtain an early proficiency in the four core graduate areas offered by the department and to become accomplished in field and laboratory methods, data analysis, and mathematical modeling. These subjects are stressed in many departmental courses and offer a common ground for interdisciplinary communication.

Each graduate student is expected to specialize in at least one of the core areas in which the department excels: ecology, atmospheric sciences, hydrology, and geosciences. The department also offers training in environmental chemistry.

Degree Requirements
In addition to fulfilling the general University requirements for graduate degrees, all graduate students must pass a 3- or 4-credit graduate-level non-seminar course in each of the core areas of the department: atmospheric sciences, ecology, geosciences, and hydrology. A candidate for an advanced degree must present and publicly defend before their committee a thesis or dissertation proposal. In addition, Ph.D. candidates must pass a comprehensive examination within four semesters of residency and also take one additional 700-level 3- or 4-credit non-seminar course. The specific courses needed for graduation are established by the student’s individual committee, depending on research requirements. The department has no uniform foreign language requirement; however, a student may be required by his or her thesis or dissertation committee to demonstrate competence in a foreign language.

A master’s of arts degree candidate must complete a minimum of 24 credits of course work at the graduate level, exclusive of 800-level and 900-level research courses. The student’s M.A. program of study is developed in consultation with the candidate’s major professor and approved by the Department’s Graduate Academic Review Committee. Training in ecology, hydrology, atmospheric science, and geosciences is expected of the degree candidate. Please refer to the departmental web site for further details.

Research Programs
Active research programs emphasizing basic science exist within each of the core areas of the department. In addition, a number of current research efforts aim to integrate many or all of the core disciplines in order to address complex environmental questions from a comprehensive viewpoint. Details on current research projects and interests of individual faculty are available on the department web site or from the department on request.

Facilities
The Department of Environmental Sciences is located in Clark Hall, along with the Brown Science and Engineering Library, on the central Grounds of the University. Additional laboratory space is located in adjacent Kerchof and Halsey Halls. Departmental facilities include field vehicles, boats, aerial photographic interpretation equipment, machine and electronics shops, environmental chambers, analytical chemistry laboratories, mass-spectrometer facility, greenhouse and insectary facilities, and a computer laboratory in support of remote sensing/GIS/weather-related research. The department maintains a Unix Sun Ultra Workstation that continuously ingests data from the Unidata Internet Data Delivery (IDD) real-time data stream which contains satellite imagery, meteorological model initializations and forecasts from meso- to hemispheric scale, atmospheric soundings, hourly surface data, radar data, along with weather watches and warnings from the National Center for Environmental Prediction. These data are accessible through Unidata software including McDAS and the 3-D Integrated Data Viewer (IDV). A computer lab of six Dell workstations is available with GIS software and is used for teaching. Several large format flat panel LCD screens are available for teaching and presentations, along with large format color printers. The department has a geographic information system (GIS) laboratory equipped with several SUN workstations running ERDAS and ARCINFO software. Appropriate color output devices are available. Departmental field facilities include several instrumented watersheds in and adjacent to the Shenandoah National Park, in the coastal plain, and on the Eastern Shore of Virginia. The Pace-Steger Estate is a department research facility in a Piedmont secondary forest that includes hydrological and meteorological monitoring equipment. The Virginia State Climatology Office is located within the department.

The department also operates the Virginia Coast Reserve Long Term Ecological Research (VCR/LTER) site under funding provided by the National Science Foundation. This site is one of 18 which provide an international focus on ecosystem properties. The VCR/LTER’s primary focus is in spatial and temporal variation in a barrier island-lagoon complex that leads to changes in ecosystem states.

Blandy Farm The Blandy Experimental Farm provides residential, greenhouse, laboratory, and field facilities for student and faculty research. It is particularly well-suited for manipulative field experiments in agricultural, old field, and forest environments.

Moore Lectures The department presents a University-wide series of lectures under the sponsorship of Mr. Fred H. Moore, an alumnus of the University. These are delivered annually by nationally known authorities on broad areas of environmental concern to society.

Course Descriptions

Environmental Sciences

EVSC 503 - (4) (IR)
Applied Statistics for Environmental Scientists
Prerequisite: MATH 111, STAT 112, or equivalent; corequisite: EVSC 503L

EVSC 503L - (O) (IR)

Applied Statistics Laboratory
Corequisite EVSC 503.
Use of computer laboratories in the analysis of quantitative data.

EVSC 511 - (4) (Y)
Systems Analysis in Environmental Sciences
Prerequisite: MATH 132 or equivalent; computer programming experience.
Applies a variety of systems analysis techniques to the environmental sciences, particularly ecology. Examines and uses simulation models of ecosystems, biological populations, and hydrological, atmospheric, and geological systems to address scientific questions in the environmental sciences. Student projects apply techniques to specific problems.

EVSC 544 - (3) (O)
Physical Oceanography
Prerequisite: PHYS 231, 232 or equivalent, two semesters calculus, MATH 131, 132 recommended, or instructor permission.
Studies the physical properties, processes, and structure of the oceans; mass and energy budgets; methods of measurements; and the nature and theory of ocean currents, waves, and tides in the open sea, near shore and in estuaries.

EVSC 546 - (4) (Y)
Forest Hydrology
Prerequisite: introductory hydrology or instructor permission.
Study of hydrologic processes characteristic of forested regions.

EVSC 710 - (3) (E)
Introduction to Remote Sensing
Prerequisite: At least one year of college-level chemistry or physics, or instructor permission.
Introduction to the physics and techniques of remote sensing.

EVSC 760 - (3) (Y)
Microclimatology
Prerequisite: EVSC 350 or instructor permission.
Studies principles governing atmospheric processes occurring at small temporal and spatial scales near the Earth’s surface, including energy, mass and momentum transfer. Includes features of the atmospheric environment affecting plants and feedback mechanisms between plants and their local micro-

Graduate School of Arts and Sciences • 91
climates, trace gas exchange between the terrestrial biosphere and the atmosphere, energy budgets, evapotranspiration, and motions near the surface.

EVSC 778 - (4) (E) Quantitative Contaminant Hydrology
Prerequisite: A 500-level course in geology or hydrology.
Provides an integrated interdisciplinary approach to quantitative aspects of the physics, chemistry, and biology of groundwater systems. Focuses on problems involving contamination of groundwaters. Emphasizes numerical solutions of equations with digital computers. Laboratory exercises are heavily oriented toward computer modeling, but also involve laboratory and field work.

EVSC 782 - (4) (IR)
Environmental Chemistry
Prerequisite: One year of college chemistry with laboratory, EVSC 386 or its equivalent. Studies the natural and anthropogenic mechanisms that control the chemistry of the environment through biogeochemical cycling. Introduces more specialized topics, e.g., atmospheric chemistry and aqueous geochemistry.

EVSC 786 - (3) (O)
Isotope Geochemistry
Prerequisite: Instructor permission. Investigates natural phenomena by means of stable and unstable isotopes and changes in their abundance, including isotope fractionation. Includes age dating, paleotemperature determination, and isotope tracers in natural systems.

EVSC 790, 791 - (1) (S)
Departmental Seminar
Studies current problems in environmental research management or public policy as presented by visiting speakers, faculty, or advanced graduate students.

EVSC 795, 796 - (3) (S)
Special Topics in Environmental Sciences
Prerequisite: Instructor permission. Interdisciplinary focus on current problems and research in integrated areas.

EVSC 890, 891 - (3) (S)
Seminar in Environmental Sciences
Prerequisite: Instructor permission. A central interdisciplinary research topic used as the focus of journal papers to be summarized and discussed by the participants. Proposals for original research within the selected area are also explored.

EVSC 895, 896 - (3) (S)
Advanced Topics in Environmental Sciences
Prerequisite: Instructor permission. Interdisciplinary treatments of environmental systems wherein the interrelationships of hydrosphere, atmosphere, biosphere, and lithosphere are explored and analyzed.

EVSC 897 - (3, 6, 9, 12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken under the supervision of a thesis director.

EVSC 898 - (3, 6, 9, 12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

EVSC 993, 994 - (1-9) (S)
Research Problems
Individual or group research on interdisciplinary problems in environmental sciences.

EVSC 997 - (3, 6, 9, 12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

EVSC 999 - (3, 6, 9, 12) (S)
Non-Topical Research
For doctoral research, taken under the supervision of a dissertation director.

Atmospheric Sciences

EVAT 541 - (4) (Y)
Atmospheric Dynamics
Prerequisite: MATH 131, 132 and PHYS 231, 232, or equivalent. Introduces theoretical meteorology encompassing dry and moist air thermodynamics, the mechanics of atmospheric motion, and the dynamics of atmospheric weather systems.

EVAT 542 - (3) (Y)
Microclimate
Prerequisite: EVSC 350 or equivalent, or instructor permission. Examines principles of radiation transfer, soil heat flux, atmospheric heat transfer, atmospheric moisture, evapotranspiration, motions near the Earth’s surface, and surface energy balances to provide a basis for describing the microclimate of various surfaces.

EVAT 550 - (3) (O)
Environmental Climatology
Corequisites: EVSC 350 or the text The Science and Wonders of the Atmosphere, or equivalent. An advanced survey of the theoretical and experimental research areas in climatology and meteorology, emphasizing environmental problems associated with the atmosphere. Fundamental principles used in these studies are introduced and discussed, along with procedures used to present and analyze atmospheric information.

EVAT 554 - (3) (O)
Ocean-Atmosphere Dynamics
Prerequisite: EVSC 350 or equivalent, or one semester of calculus-based physics, or instructor permission. Begins with the equations of motion governing the atmosphere and generalizations necessary for application to ocean dynamics. Topics include influence of atmospheric thermal- and wind-forcing on the ocean, oceanic feedback on the atmosphere, and intrinsically coupled ocean-atmosphere processes. Examines the behavior of the coupled ocean-atmosphere and climate system on seasonal, interannual, and longer time scales (e.g., El Niño/Southern Oscillation phenomenon).

EVAT 793 - (1-6) (S)
Independent Study: Atmospheric Sciences
Individual or group study in developing or special areas of atmospheric sciences and interrelated areas.

EVAT 795, 796 - (3) (S)
Special Topics in Atmospheric Sciences
Prerequisite: Instructor permission. Intensive presentation of selected interdisciplinary areas that stress atmospheric systems rarely covered in the established curricula.

EVAT 895, 896 - (3) (S)
Advanced Topics in Atmospheric Sciences
Prerequisite: Instructor permission. Detailed, integrative treatments of those atmospheric systems in which the nature and dynamics of the atmosphere are central.

Ecology

EVEC 521 - (4) (Y)
Aquatic Ecology
Prerequisite: EVSC 320, 340, 420 or equivalent; integral calculus; or instructor permission. Reviews the physics and chemistry of freshwater and marine environments; functional classification of organisms in aquatic communities; and the energy and nutrient dynamics of aquatic communities. Three lecture hours, three laboratory hours.

EVEC 522 - (4) (O)
Terrestrial Ecology
Prerequisite: EVSC 320 or equivalent, and instructor permission. Analyzes the patterns and processes in terrestrial ecosystems. Topic include macro- and micro-meteorological factors such as producer, consumer, and decomposer processes; hydrologic and biogeochemical pathways; and changes through space and time. Three lecture and four field or laboratory hours.

EVEC 523 - (3) (Y)
Microbial Ecology
Prerequisite: EVSC 280, 320, 340, 350 or equivalent; or instructor permission. Explores relationships of microorganisms to similar organisms, dissimilar (macro) organisms, and the physical-chemical environment to demonstrate basic ecological theory and indicate the importance of microbes in maintaining our world. Includes the organisms, microbial habitats, community formation and structure, interspecific relationships, nutrient cycling, and anthropocentric ecology.

EVEC 523L - (1) (Y)
Microbial Ecology Laboratory
Prerequisite: Instructor permission; corequisite: EVEC 523. Provides an opportunity to learn and experience the techniques used in microbial ecological research. Utilizes both classic techniques and state-of-the-art methods to determine microbial biomass in nature. Covers various methods of determining microbiological activity. Several exercises involve field sampling and analysis.
EVGE 525 - (3) (Y)
Ecological Issues in Global Change
Prerequisite: EVSC 320 or equivalent, one year of college calculus, or instructor permission; corequisite: EVSC 525L.
Introduces development and application of theoretical constructs and mathematical models for projecting the dynamics of terrestrial ecosystems to large scale changes in the environment.

EVGE 525L - (1) (Y)
Ecological Issues in Global Change Laboratory
Corequisite: EVSC 525.
Computer-based laboratory in the application of ecological models to problems in evaluating the responses of terrestrial ecosystems to large scale environmental change.

EVGE 722 - (3) (E)
Estuarine Ecology
Prerequisite: EVSC 521, EVGE 584, introductory chemistry, and instructor permission.
Includes hydrology, sediments, and biogeochemical cycles of the estuarine environment; organisms and their physiological adaptations, primary production, trophic relationships, and human-induced alterations.

EVGE 793 - (1-6) (S)
Independent Study: Ecology
Individual or group study in developing or special areas of ecology and interrelated areas.

EVGE 795, 796 - (3) (S)
Special Topics in Ecology
Prerequisite: One semester of ecology and instructor permission.
Current problems and research in various areas of ecology and related fields.

EVGE 895, 896 - (3) (S)
Advanced Topics in Ecology
Prerequisite: Instructor permission.
Integrative study of ecosystems emphasizing the dynamics of components and processes as fundamental to comprehension and analysis.

Geosciences

EVGE 504 - (3) (O)
Geochemistry
Prerequisite: CHEM 141, 142, EVSC 280, 480, two semesters calculus, MATH 131, 132 recommended; or equivalent.
Studies the principles which govern the distribution and abundance of the elements in the earth’s lithosphere, hydrosphere, biosphere, and atmosphere.

EVGE 507 - (4) (Y)
Aqueous Geochemistry
Prerequisite: One year of college chemistry and calculus, and one mineralogy or petrology course.
Studies the principals of thermodynamics as applied to mineral-water systems. Treatment includes mineral stability, phase diagrams, solution thermodynamics, electrolyte theory, aqueous complex and hydrolysis equilibria, and electrochemical equilibria.

EVGE 582 - (4) (Y)
Geomorphology
Prerequisite: EVSC 280 or EVSC 340.
Studies the processes that shape the land surface and their relationship to human activity.

EVGE 584 - (3) (Y)
Sediment Processes and Environments
Prerequisite: one year of calculus and physics, or instructor permission; corequisite: EVGE 584L.
Studies the erosion, transport, and deposition of sediment; initial motion of sediment, bedload and suspended load transport and bedforms; and important sediment-transporting environments. Applies sediment transport theory to problems of geological and environmental interest.

EVGE 584L - (1) (Y)
Sediment Processes Laboratory
Corequisite: EVGE 584.
Laboratory and field investigations of sediment transport phenomena and readings of classic and current research.

EVGE 780 - (4) (IR)
Engineering Geology and Soil Physics
Prerequisite: EVSC 280 and 340.
Topics include the physics and mechanics of soils, measurement and mapping of soil properties, and implications for human activities and land use.

EVGE 781 - (3) (O)
Geology of Virginia
An examination of the geological evolution of Virginia and the mid-Atlantic region in the context of plate tectonics, including stratigraphy, mountain building, metamorphism and deformation, and geomorphic processes. The human impact on this landscape through exploitation of mineral resources is considered.

EVGE 793 - (1-6) (S)
Independent Study-Geosciences
Individual or group study in developing or special areas of geosciences and interrelated areas, emphasizing earth-surface processes.

EVGE 795, 796 - (3) (S)
Special Topics in Geosciences
Prerequisite: Instructor permission.
Selected interdisciplinary areas which stress current problems and research in earth-surface processes and their application to the environments impacted by human activity.

EVGE 895, 896 - (3) (S)
Advanced Topics in Environmental Geology
Prerequisite: Instructor permission.
Intersciplinary study of the physical processes and responses which modify environmental systems. Exhaustive treatments of the nature and analysis of earth materials as environmental substrates and their responses to stress are represented, as are other techniques in geosciences focusing on earth-surface properties.

Hydrology

EVHY 544 - (3) (Y)
Catchment Hydrology: Process and Theory
Prerequisite: EVSC 340 or equivalent.
Introduces current theories of the hydrological response of catchments. Using an integrative approach, the course illuminates the derivation of theory in light of the time and location of the process studies on which they were based.

EVHY 545 - (4) (Y)
Hydrological Transport Processes
Prerequisite: EVSC 280 and 340 or equivalent.
Studies the physical principles governing the transport of dissolved substances, and of sediment and particulate matter in the terrestrial portion of the hydrological cycle.

EVHY 547 - (4) (Y)
Environmental Fluid Mechanics
Prerequisite: Integral calculus and calculus-based physics, or instructor permission.
Studies the mechanics of fluids and fluid-related processes occurring at the Earth’s surface, including laminar, inviscid, and turbulent flows, drag, boundary layers, diffusion and dispersion of mass, flow through porous media, and effects of the Earth’s rotation. Emphasizes topics related to the environmental sciences.

EVHY 578 - (4) (Y)
Groundwater Hydrology
Prerequisite: EVSC 280, 340 or equivalents, two semesters calculus, CHEM 141, 142 or equivalents.
Introduces physical and chemical groundwater hydrology including such topics as the mechanisms of groundwater flow, emphasizing geological factors influencing groundwater occurrence and movement; the influence of natural geological heterogeneity on groundwater flow patterns; and mass and heat transport in groundwater flow systems. The accompanying laboratory examines methods of hydrogeological data acquisition and analysis.

EVHY 744 - (3) (IR)
Dynamic Hydrology
Prerequisite: Introductory hydrology and differential equations, or instructor permission.
Studies the interrelationships of the various phases in the water cycle; principles governing that cycle; and the influence of human activity on natural circulation of water at or near the Earth’s surface.

EVHY 747 - (3) (O)
Numerical Methods in Hydrology
Prerequisite: EVHY 500-level course.
Application of numerical methods to the solution of hydrological problems. The Matlab computational and plotting software is used for all examples and assignments, including finite difference and finite element solutions to equations describing the flow of water and transport of contaminants in the terrestrial environment. Prior knowledge of Matlab is not required.

EVHY 793 - (1-6) (S)
Independent Study: Hydrology and Water Resources
Individual or group study in developing or special areas of hydrology and water resource analysis and interrelated areas.
EVHY 795, 796 - (3) (S)
Special Topics in Hydrology and Water Resources
Prerequisite: Instructor permission.
Studies particular and specific problems in hydrology and water resources not covered in regular course work.

EVHY 895, 896 - (3) (S)
Advanced Topics in Hydrology and Water Resources
Prerequisite: Instructor permission.
Specialized research into specific hydrologic or water management problems. Emphasizes an integrative analysis of the physical, social, and economic nature of these problems.

Department of French Language and Literature
302 Cabell Hall
University of Virginia
P.O. Box 400770
Charlottesville, VA 22904-4770
(434) 924-7158
www.virginia.edu/french

Degree Requirements
Master of Arts
Whether an end in itself, or a preparation for the Ph.D, the M.A. is a broad and general degree, drawing upon the materials and methods of French (and closely allied) studies to extend and deepen the candidate’s humanistic background and competencies. The program’s prime goals thus include the following: broad knowledge and understanding of French culture from its origins to the present; effective teaching skills built through training and experience; tools of intellectual inquiry necessary for further study, including abstract thinking and research skills; mastery of the French language.

Course Requirements
Coursework (ten courses or thirty credits) and a comprehensive examination (with both written and oral components) are the essential elements of our M.A. degree. A minimum of twenty-four credits (usually eight courses) must be taken in the department. All courses are selected in consultation with the Director of Graduate Studies and with the student’s faculty advisor. We also offer the opportunity to work with individual faculty directors on a research thesis at the M.A. level.

Comprehensive Examination
The M.A. exam consists of a two-part written and a three-part oral, covering a broad chronological spectrum of French and Francophone Studies from the Middle Ages to the present: List A (Pre-1800) and List B (Post-1750). These exams are typically taken at the end of the student’s second year in the program. The two-part written exam is composed in French. One of the three parts of the oral exam is conducted in English. No student passes whose French and English are not deemed by the examining committee to be sufficiently fluent and correct.

All MA examinations are administered during a one-week period during the last week of April. It is the responsibility of the candidate to notify the Director of Graduate Studies, one month in advance, of the intent to sit for the M.A. examinations. All parts of the examination must be passed; in case of failure, any part of the comprehensive examination may be retaken only once, normally at a make-up session held two weeks later.

Part One of the written examination (List A or List B) is a 2-hour textual commentary based on the close reading of a passage distributed to examinees 72 hours prior to the examination date. Part Two is a 4-hour written exam, based upon the same reading list elected for the textual commentary. Questions will be distributed on Monday afternoon. The examination is to be completed and returned by Wednesday afternoon at 5 p.m.

The 75-minute oral examination, scheduled typically on the first Friday of examination week, covers the list not examined in the written. It includes: (1) a twenty-minute oral presentation, based either on a course paper or on independent research; (2) followed by discussion of that paper and; (3) by general questions on the reading list elected for this examination.

Time Limit
The M.A. degree is normally completed in four semesters. The graduate studies committee must be petitioned for any extension. By GSAS regulations, the absolute time limit for completion of the degree is five years.

Review and Permission to Take Further Course Work
At the end of the first year, individual progress is reviewed and a second-year calendar prepared by the director of graduate studies in consultation with the candidate. The director submits to the faculty a report and evidence of insufficient progress, if the need arises.

Immediately after completion of the master’s comprehensive examination, each candidate who wishes to take further course work must petition the director for consideration by the faculty. Evidence to be considered includes grades, M.A. examination results, and faculty reports. Prior to admission to the Ph.D. program, appointment to a graduate teaching assistantship does not entail, nor should it be construed as implying, such admission. Continuance is conditional upon satisfactory progress toward completion of the doctoral program; permission to take further course work does not entail admission to candidacy for the degree of Ph.D., which follows upon successful completion of the Ph.D. preliminary examinations.

Doctor of Philosophy
The Ph.D. is a closely supervised research degree, emphasizing (1) extensive advanced work in at least two related fields; (2) a high degree of sophistication in appropriate aspects of theory and methods; and (3) proficiency in the expository, investigative and linguistic skills required in the chief modes of professional writing.

Admission
To begin doctoral work, the prospective candidate normally holds the University of Virginia M.A. degree in French and has permission to take further course work, as outlined above.

A student entering with an M.A. degree (or the equivalent) from another institution is considered for permission to take further course work after completing all requirements for the University of Virginia M.A. in French not satisfied by courses taken (or proficiency achieved) elsewhere. A student admitted without deficiency is considered for permission to take further course work after one semester (nine credits) of doctoral courses completed in this department.

Advisory Board
Not later than the first week of doctoral course work, all prospective candidates will submit to the graduate studies committee a statement of purpose, on the basis of which the committee will make recommendations regarding the composition of the student’s advisory board. During the following week, the Director of Graduate Study will initiate a meeting with each student to discuss these recommendations and, on behalf of the student, will send a brief letter of introduction to prospective advisory board members. The student will then arrange to meet with prospective advisory board members, determine a chair of said board, and report this information back to the Director of Graduate Study who, in turn, will send to all concerned parties an official letter to that effect. The presumptive director of the dissertation is a member of the board, from the beginning of the student’s program, if possible, otherwise as soon as the student’s research interests have become clear and consent of the board has been obtained. The board confers with the student each term on such matters as long-range goals, choice of major and adjunct fields, selection and timing of courses, deadlines and strategies for the satisfaction of degree requirements, as well as the rate and quality of the student’s progress. In addition, the board is responsible for administering the preliminary examination, and, together with the graduate studies committee, takes part in assessing the candidate’s dissertation prospectus. After each meeting with the candidate, the chair of the advisory board reports to the director of graduate studies. As the need arises, the advisory board may be changed by petition to the graduate studies committee from the student or any faculty member on the advisory board.

At the time of preliminary examinations, the advisory board is replaced by the departmental dissertation committee. A period of at least three months must elapse (1) between changes in the composition of the advisory board and the taking of the preliminary examinations, and (2) between any change in dissertation director and the defense of the dissertation.

Requirements for the Degree of Doctor of Philosophy
(1) A minimum of eight courses beyond the M.A. (up to three courses may be taken in other departments); course
selection by consultation with the advisory board; (2) a preliminary examination (see below for details); (3) dissertation and final oral examination defense.

Three seminars; Proseminar; language and professional development courses as appropriate; a course in French civilization, Francophone literature, or both, are recommended.

By GSAS rule, total time in the Ph.D. program after the B.A. must be at least three sessions (academic years) and total credits of graduate study (excluding non-topical research, but including independent study) must be at least 54 (eighteen three-credit courses).

Ph.D. students are normally required to serve as graduate instructors and may therefore expect to take the one-credit practicum, FREN 704 (Theories and Methods of Language Teaching), which is required of all teaching assistants in the first semester of teaching.

Language Requirement To fulfill the general reading knowledge requirement of the Graduate School of Arts and Sciences, the student pursuing the Ph.D. in French may not present that language, but should present another Romance language or German, or any other language approved by the advisory board. Two options are available:
1. Two literature courses, not in translation, at the 300-level or above, selected with the consent of the advisory board and completed with a grade of B or better; or
2. Satisfactory performance on a written translation test, part of which is completed with, and part without, a dictionary.

Preliminary Examination After the student has completed course work and language requirements, the advisory board determines readiness for the preliminary examination, successful completion of which admits the student to candidacy for the Ph.D. The examination consists of a six-hour written exam on the reading list of the major field, a three-hour written exam on that of the adjunct field, and a one-to-two hour oral exam. The oral consists of a thirty minute presentation of an aspect of the dissertation topic, a discussion of the presentation, questions arising from the written examination, and other issues related to the student's work. Admission to the oral is contingent on the quality of the written. The written exams are to be completed on non-consecutive days, normally in the same week; the oral exam occurs the following week. The major field is composed in French; the adjunct field in English.

No student passes whose French or English is deemed by the advisory board to be inadequate. All parts of the examination must be passed. In case of unsatisfactory performance, the part failed must be retaken. Only one reexamination is permitted on any part.

Dissertation Upon completion of preliminary examinations, the Advisory Board is replaced by the departmental Dissertation Committee consisting of the prospective dissertation director and a colleague, both chosen by the candidate. Within three months after admission to candidacy, the student will present a prospectus of his or her dissertation to the Dissertation Committee and the Graduate Studies Committee for discussion, approval, and possible amendment by both bodies. As the dissertation progresses, the Dissertation Committee will be joined by a third reader from the Department and a dean's representative for the final examination, an oral defense.

Course Descriptions

Note: To enroll in courses numbered 500 or above, all graduate or special students must have completed the equivalent of three years in the appropriate foreign language at the college level. All 500-level courses are taught on the graduate level; Prerequisite for undergraduates to enroll in 500-level courses is successful completion of 400-level courses with a grade of B or higher and permission of the instructor. For courses numbered 800 or above, graduate status in the department or special permission is required.

FREN 101G - (0) (Y)
Reading
Prerequisite: Open only to graduate students. Preparatory course in grammar and translation for graduate students who need to take a reading exam in French. Students who complete FREN 101G should be able to read and translate French texts with the proper dictionaries and grammar resources. Not a course in speaking, writing, or listening comprehension.

FREN 501 - (3) (IR)
Development of French Language Skills
Prerequisite: at least two courses at the 400 level with an average grade of B+.
Grammar, stylistics, composition, and translation (thème et version).

FREN 508 - (3) (Y)
Introduction to Reading Old French
Prerequisite: Good reading knowledge of modern French.
Readings from several varieties of Old French, including the Ile-de-France, Picard, and Anglo-Norman dialects. Considers the derivation of French from Latin. Taught in English.

FREN 509 - (3) (SI)
Introduction to Old Provençal Language and Literature
Prerequisite: FREN 508 or instructor permission.
Old Provençal (alias Old Occitan) as a grammatical system with some attention to its derivation from Latin. Readings of simple prose texts followed by poetic selections of the troubadours. Taught in English.

FREN 510 - (3) (E)
Medieval Literature in Modern French
Introduces literary forms, habits of style and thought, and conditions of composition from the late eleventh century to the late thirteenth. Chanson de Roland, Chrétien de Troyes, Marie de France, lyric poetry, etc.

FREN 511 - (3) (O)
Medieval Literature in Modern French II
An inquiry into the literary culture of the period from the late thirteenth century to the late fifteenth. Topics include the Roman de la Rose, Joinville, and Froissart; the development of drama; new lyric forms, early humanism; Villon; and problems of literary history and hermeneutics for a neglected period in French culture.

FREN 520 - (3) (O)
Literature of the Sixteenth Century: Poetry
Studies the developments in theory and practice of French Renaissance poetry and poetics as seen in works by the Rhetoriqueurs, including Marot, Sebillot, Sceve, Labe, Du Bellay, Ronsard, and d'Aubigne.

FREN 521 - (3) (E)
Literature of the Sixteenth Century: Prose
Studies important trends in Renaissance thought and style as seen in the works of major prose writers including Erasmus, Rabelais, Marguerite de Navarre, and Montaigne.

FREN 527 - (3) (Y)
French Phonetics and Phonology
Prerequisite: Not open to undergraduates who have taken FREN 427 or the equivalent. Studies the French sound system, both in theory and practice. Provides essential articulatory phonetics, distinctive features, morphophonemics, prosodies and contrastive analysis. Practice in the production, recognition, and transcription of speech sounds. Opportunity for the correction and improvement of individual problems in French pronunciation. Requires classroom and laboratory instruction.

FREN 529 - (3) (SI)
Applied Linguistics: French
A synchronic study of the structure of French to be made through a contrastive analysis of French as a target language and English as a source language. Analysis considers syntax primarily; some elements of semantics also are considered. The theoretical assumptions lead to practical procedures applicable in a teaching situation.

FREN 530, 531 - (3) (Y)
Literature of the Seventeenth Century
Studies art forms and society during the baroque and classical periods of French literary history. Readings in theater, fiction, rhetoric, and poetry.

FREN 540 - (3) (Y)
Literature of the Eighteenth Century I
Religious, moral, and political thinking as reflected in the works of Bayle, Fontenelle, Montesquieu, Voltaire, Rousseau, Diderot, Helvetius, and others.

FREN 541 - (3) (Y)
Literature of the Eighteenth Century II
Developing trends in traditional genres (drama, novel, poetry), as reflected in the works of Le Sage, Marivaux, Beaumarchais, Diderot, Chenier, Voltaire, Prevost, Rousseau, and others.
FREN 545 - (3) (IR)
Topics in Cultural Studies
Interdisciplinary seminar in French and Francophone culture. Topics vary.

FREN 550, 551 - (3) (Y)
Literature of the Nineteenth Century

FREN 560 - (3) (Y)
Literature of the Twentieth Century
Principal literary movements and representative authors in the novel.

FREN 561 - (3) (Y)
Literature of the Twentieth Century
Principal literary movements and representative authors in drama and poetry.

FREN 570 - (3) (O)
New World Literature
Studies the principal movements and representative authors writing in French in Northern, Central, and Western Africa, with special reference to the islands of Madagascar and Mauritius. Includes the literary and social history of those regions.

FREN 571 - (3) (E)
Comparative Caribbean Culture
A comparative examination of postcolonialism and postmodernism in the Caribbean region, emphasizing the dynamics of center and margin. Texts are taken from the anglophone, francophone, and Hispanic Caribbean.

FREN 580 or instructor permission.

FREN 810 - (3) (Y)
Seminar in Medieval Literature
Prerequisite: FREN 508.
(a) Chansons de geste, chroniques, memories.
(b) Vies des saints, romans. (c) Poesie non-narrative, theatre. (d) Satire et humanisme.

FREN 820 - (3) (Y)
Seminar in Eighteenth-Century Literature
(a) Rabelais. (b) Montaigne.

FREN 830 - (3) (Y)
Seminar in Seventeenth-Century Literature
(a) Moliere. (b) Racine. (c) Corneille. (d) The Moralists. (e) The Lyric of the early seventeenth century. (f) La Fontaine. (g) Contes et Nouvelles.

FREN 840 - (3) (Y)
Seminar in Eighteenth-Century Literature
(a) Voltaire. (b) Diderot. (c) Theater. (d) Novel. (e) Rousseau. (f) Marivaux.

FREN 850 - (3) (Y)
Seminar in Nineteenth-Century Literature
(a) Flaubert. (b) Zola. (c) Balzac. (d) Stendhal. (e) Symbolist Theater. (f) Naturalistic Novel. (g) Musset. (h) Hugo. (i) Baudelaire and Nerval. (j) La Decadence. (k) Rimbaud, Verlaine, Mallarme. (l) George Sand. (m) Vigny.

FREN 860 - (3) (Y)
Seminar in Twentieth-Century Literature
(a) Proust. (b) Gide. (c) Theater. (d) Roman-fleuve. (e) Existentialism. (f) New Novel. (g) Valery. (h) Dada and Surrealism. (i) Supervielle and St. John Perse.

FREN 870 - (3) (Y)
Seminar in Francophone Literature
Studies the Francophone literature of Africa, with special emphasis on post-World War II poets, novelists, and playwrights. Examines the role of cultural and literary reviews in the historical and ideological development.

FREN 880 - (3) (Y)
Selected Topics in French Civilization
Prerequisite: FREN 580 or instructor permission.
In-depth studies of cultural topics and research methodologies in French civilization.

FREN 893, 894 - (3) (Y)
Independent Study/Selected Topics in French Literature and/or Civilization

FREN 897 - (3-12) (Y)
Non-Topical Research
For master's research, taken before a thesis director has been selected.

FREN 997 - (3-12) (Y)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

FREN 999 - (3-12) (Y)
Dissertation Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Germanic Languages and Literatures

Degree Requirements
Master of Arts Candidates are required to take at least eight graduate courses (24 credits) and are encouraged to take a balanced load of courses, ranging from the Middle Ages to the present. One course may be taken outside the department if desired (with departmental approval).

GERM 510 or its equivalent is expected at the M.A. level. An examination (three-hour written, one-hour oral) is required to complete the M.A. degree. It is based on a departmental M.A. Reading List. The oral includes a short prepared talk in German, and the entire exam is taken during the third semester.

Each teaching assistant normally teaches one elementary German course in the teacher training program and at the same time enrolls in three graduate courses.

Master of Teaching in German For students interested in pursuing a high school teaching career, there are two options in conjunction with the Curry School of Education: a 5-year program, in which the student gets a B.A. in German and a Master of Teaching, and a 15-month program, the post-graduate Master of Teaching. For more information, please contact Alicia Belozero, Curry School of Education, Ruffner Hall or Janette Hudson, German Department.
Doctor of Philosophy Requirements for entry into the Ph.D. program are the M.A. degree and departmental permission to proceed. The latter is a decision arrived at in a meeting of all faculty members, and it is based on class work, the M.A. examination, and the general performance of the student in the teacher training program.

Requirements include at least ten graduate courses (30 credits are required beyond the M.A. degree). Specialization that prepares for a dissertation is encouraged.

Periodic evaluation of the teaching performance of graduate instructors forms an integral part of the evaluation of the candidate’s progress in the program. Each student must teach a minimum of four semesters beyond the M.A. degree.

Candidates normally specialize in the works of one author, in a genre (poetry, novel, drama, or Novelle/Erzählung) and in a period (medieval, romantic, post-war, etc.). Literary theory, however, may be substituted for a genre.

In the first semester as a Ph.D. candidate, the student submits a proposed reading list in all three areas to a committee of three faculty members (appointed by the chair after consultation with the student). Generally the head of the committee is the student’s dissertation advisor. The author, genre, and theory lists are based on departmental core lists, whereas the period lists are developed along the lines of previous period lists. In certain cases a combination of two specialties not mentioned in the guidelines can be approved by the chair and the committee of three. By the end of the second semester after the M.A., however, all three parts of the list must be in final form.

For the Ph.D. a reading knowledge of French is required—or another language, if approved by the chair and the student’s committee, and this requirement must be fulfilled before the Ph.D. examination. Reading knowledge is demonstrated either by passing a literature course in the respective department with a grade of B or better, or by passing a written examination administered by the German department. Students should study French during the summer, inasmuch as this does not count as a regular course.

The Ph.D. examination consists of three written examinations—a period, genre, and a major author—plus a two-hour oral which includes a 15-minute critical presentation. The oral follows the written exam within a week, and the overall examination is graded as distinguished, passing, or failing. In the case of a failure, the student is granted another opportunity to take the examination within the following two semesters. All course work and the language requirement, however, must be completed before the examination can be taken.

The Ph.D. dissertation should be a book-length manuscript suitable for publication. With special permission the department has accepted three publishable articles instead. For the dissertation defense, a committee member is selected from outside the department.

Each semester a Ph.D. student teaches a five-day elementary German course plus enrolls in three graduate courses. Candidates generally complete the eight courses in three semesters (three courses each of the first two semesters, two the last). If desired, however, the student can take ten courses in four semesters (three courses each of the first three semesters, then one the last). In either case the Ph.D. exam takes place at the end of the last semester of course work, either early in January or in May. Whether taking the three- or four-semester option, students who postpone the exam from May until late summer are not granted the last-semester course reduction, but are required to take the normal three courses.

The continuation of financial support from year to year in the department is contingent upon satisfactory progress toward a degree.

For more information or application forms, please write: Volker Kaiser, Director of Graduate Studies, Department of German, University of Virginia, P.O. Box 400125, Charlottesville, VA 22904-4125.

Course Descriptions

GERM 500 - (3) (IR) Critical Writing and Bibliography Supervised practice in the organization and writing of articles for scholarly journals. Includes introduction to bibliography.

GERM 505 - (3) (IR) Special Topics Major figures, genres, or literary problems serve as the focus for an intensive course within any literary period.

GERM 510 - (3) (IR) Middle High German Introduces Middle High German grammar and included readings in Middle High German literature.

GERM 512 - (3) (IR) Medieval German Lyric Poetry Prerequisite: Knowledge of Middle High German. Selections from the Minnesang in the context of the development of Middle High German poetry.

GERM 514 - (3) (IR) Arthurian Romance Prerequisite: Knowledge of Middle High German. Theory and analysis of the chief German Arthurian romances: Erec, Parzival, Iwain, and Tristan.

GERM 521 - (3) (IR) Reformation to Baroque, 1700 German literature from 1500 to 1680.

GERM 523 - (3) (IR) Weise to Wieland Studies German literature from 1680 to 1750.

GERM 525 - (3) (IR) Age of Goethe I Studies German ‘Storm and Stress’ and classicism, focusing on Goethe and Schiller.

GERM 526 - (3) (IR) Age of Goethe II Studies representative romantic works against the background of German intellectual history, 1795-1830.

GERM 530 - (3) (IR) Romanticism German literature and intellectual history from 1795 to 1830.

GERM 537 - (3) (IR) Nineteenth Century Major writers and works from 1830 to 1890, including Grillparzer, Stifter, Heine, Hebbel, Keller, Storm, Fontane.

GERM 547 - (3) (IR) Turn of the Century Discusses the major literary movements at the turn of the century with analysis of representative works by Hofmannstahl, Schnitzler, George, Rilke, Thomas Mann, Musil, Kafka, and others.

GERM 548 - (3) (IR) Twentieth Century Introduces the main currents of German literature since 1920, emphasizing major authors and traditions.

GERM 550 - (3) (IR) Studies in Lyric Poetry Investigates the theory and practice of lyric poetry in Germany, emphasizing major authors and traditions.

GERM 551 - (3) (IR) Studies in Prose Fiction Studies representative works of fiction—either novels or shorter forms—with special attention to formal and thematic developments, and representative theories of fiction.

GERM 552 - (3) (IR) Studies in Drama Investigates dramatic theory and practice in Germany, emphasizing major authors and traditions.

GERM 560 - (3) (IR) Old Icelandic Prerequisite: Graduate Standing or instructor permission. An introduction to the language and literature of the Vikings, with exercises in the grammar and basic vocabulary of Icelandic. Includes readings of passages from the classical literature and the whole of Gisla saga.

GERM 584 - (3) (IR) Introduction to Literary Theory Current theories of literature, including Marxist, psychoanalytical, formalist, structuralist, and hermeneutic approaches.

GERM 588 - (3) (IR) Linguistic Approaches to Literature Aspects of literary style in the light of modern linguistics.

GERM 595, 596 - (3) (S) Guided Research Individually directed special research projects.
GERM 740 - (3) (IR)  
German Intellectual History From the Enlightenment to Nietzsche  
Studies the development of the concepts of “education” and “evolution,” and the predominance of aesthetics in German culture.  
Includes lectures on the impact of Leibnitz, Kant, and Schopenhauer; and readings in Lessing, Kant, Schiller, Fichte, Hegel, Feuerbach, Marx, and Nietzsche.

GERM 741 - (3) (IR)  
Nietzsche and Modern Literature  
Reading and discussion of the major works of Nietzsche, in English translation, from The Birth of Tragedy to Twilight of the Idols.  
Emphasizes the impact of Nietzsche on 20th-century literature and thought in such diverse authors as Shaw, Rilke, Thomas Mann, and Kafka. Includes a term paper to be submitted in two stages and a final examination.

GERM 742 - (3) (IR)  
German Intellectual History from Nietzsche to the Present  
Readings in and discussion of the intellectual, philosophical, and social history of Germany from the late nineteenth century to the present.

GERM 750 - (3) (E)  
German Cinema  
Studies the aesthetics and semiotics of German film, with a focus on expressionism and New German Cinema.

GERM 751 - (3) (S)  
Advanced Topics  
Investigates subjects requiring considerable previous knowledge.

GERM 770 - (3) (IR)  
Narrative Theory  
Study and comparison of major theories of narrative, including Booth, Stanzel, Barthes, Genette, Cohn, Bakhtin, and others.

GERM 881 - (3) (Y)  
Pre-Dissertation Research I  
Supervised reading, directed toward the formulation of a dissertation proposal by the individual student.

GERM 882 - (3) (Y)  
Pre-Dissertation Research II  
Supervised reading, directed toward the formulation of a dissertation proposal by the individual student.

GERM 891, 892 - (3) (S)  
Seminar  
Special problems in German literature and linguistics.

GERM 893, 894 - (3) (S)  
Seminar in Language Teaching  
Studies the theory and practice of language teaching with supervised classroom experience. One group meeting per week plus extensive individual consultation. Required of all teaching assistants in the teacher training program.

GERM 895, 896 - (3) (S)  
Guided Research  
Special research projects for advanced students. Individually directed.

GERM 897 - (3, 6, 9, 12) (S)  
Non-Topical Research, Preparation for Research  
GERM 898 - (3, 6, 9, 12) (S)  
Non-Topical Research  
For master’s thesis, taken under the supervision of a thesis director.

GERM 996 - (3) (S)  
Dissertation  
GERM 997 - (3, 6, 9, 12) (S)  
Non-Topical Research, Preparation for Doctoral Research  
GERM 999 - (3, 6, 9, 12) (S)  
Non-Topical Research  
For doctoral dissertation, taken under the supervision of a dissertation director.

Course Descriptions

Health Care Policy and Management  
Focuses on the evolution of the American health care system from a health policy and values perspective, emphasizing the current health care system. Reviews unsuccessful legislative attempts to implement a national health program and discusses current issues surrounding the financing and organization of the delivery of health care under various economic and political frameworks. Cross-listed as HES 510.

Department of History  
Randall Hall  
University of Virginia  
P.O. Box 400180  
Charlottesville, VA 22904-4180  
(434) 924-7147 Fax: (434) 924-7891  
history@virginia.edu  
www.virginia.edu/history

Degree Requirements

Master of Arts  
Candidates for the degree of Master of Arts in History are required to pass eight semester courses (24 credits including work in seminars and colloquia) and, for those outside United States and European history, an oral examination of one hour covering two special fields of history, and write a thesis. Candidates must also meet the foreign language requirement. This is usually done by showing at least two years (or the equivalent) of satisfactory work in a foreign language on the undergraduate transcript. Candidates who cannot do this must pass a proficiency-level language examination.

Doctor of Philosophy  
Candidates for the degree of Doctor of Philosophy in History are required to pass 18 semester courses (54 credits including seminar and colloquium requirements), a set of written exams, and a two hour general oral examination covering one major field, a special field within the major field, and a special field outside the major field. This examination must be taken after the colloquium requirement has been met, after the written exams have been passed, and after at least one mastery-level foreign language examination has been passed.

All candidates must demonstrate a reading knowledge of at least one foreign language. Reading knowledge of a second foreign language is regularly required in most non-American fields, and a third or even fourth language may be necessary in certain fields.

After submission of the dissertation, a final oral examination is given in which the candidate must defend the dissertation.

All fields of study are chosen in consultation with the major professor. At least 15 credits must be in topical history research seminars and colloquia, including at least two such seminars beyond the required seminar work of the first-year program. Candidates are also required to present three credits in a related field, in a department other than history, selected with the approval of the major professor.

Program in Legal History  
The history department, in cooperation with the School of Law, enables students to develop special competency in American legal history and in English legal history. For the M.A. degree students must offer at least one field in legal history in the M.A. oral examination. For the Ph.D. two special fields in legal history are required. A joint committee of the faculty in history and in law administers the program. Admission to the program is through the usual procedures of admission to the Department of History.

Historical Editing  
The history department offers courses which enable students to develop competency in historical editing while studying for the M.A. or Ph.D. degree. Application is through the usual procedures toward admission to the Department of History.

Course Descriptions

Graduate Courses in the history department fall into four groups, each demarcated by a different first digit. Courses in the 500 and 700 range are colloquia; that is, they are built around reading and group discussion on a weekly basis and writing assignments focused on the reading of secondary works. The 500-level colloquia combine advanced undergraduates and graduate students; they carry full graduate credit. Courses carrying a 700 number and above are for graduate students only. Courses in the 800 range are seminars; that is, they assume some familiarity with the field and involve the writing of a substantial work of primary research on a specific topic. Courses in the 900 range are independent study, designed to permit students to explore fields in which courses are not offered, prepare for comprehensive examinations, or
work on their theses or dissertations. Students should discuss enrollment in any of these courses with the instructor beforehand, since specific skills and prior course work are often necessary.

**African History**

**HIAF 701, 702 - (3) (IR)**

*The History and Historiography of Africa*

Taught for graduate students with no previous experience in African history; consists of attendance at the lecture sessions of HIAF 201, 202, and weekly discussions devoted to more detailed examination of the technical and interpretive problems in writing African history.

**HIAF 703 - (3) (IR)**

*History and Historiography of North Africa, ca. 1800-Present*

Prerequisite: HIME 201, 202.

Introduces the literature on North Africa (Morocco, Algeria, and Tunisia) from the pre-colonial period to the postcolonial era. An intensive readings and discussion colloquium devoted to the major issues in the region's political, economic, social, and cultural history, and to the issues raised by colonial historiography.

**HIAF 801, 802 - (3) (IR)**

*East Asian History*

Directed readings, discussions, and research papers on selected topics in Chinese and Japanese history.

**HIAE 811 - (3) (IR)**

*Traditional Chinese History*

Studies documents related to social and political philosophy. Emphasizes translated texts, but some attention will be paid to Chinese texts and the problems of translation.

**HIAE 821 - (3) (IR)**

*Japanese History*

Discusses selected issues in the social, political, and economic development of Japan from the Tokugawa period to the present.

**European History**

**HIEU 501 - (3) (IR)**

*Archaic Greece*

Prerequisite: HIEU 203 or equivalent.

Study of the rise of Greek civilization. Provides a political and constitutional history of the development of the Greek city-state, emphasizing classic Athens.

**HIEU 502 - (3) (IR)**

*Greece in the Fifth Century*

Prerequisite: HIEU 203 or equivalent.

Examination of the political, diplomatic, and social history of Greece from the end of the Persian Wars in 479 B.C. to the end of the Peloponnesian War in 404/3 B.C. Investigates the origins, course, and importance of the latter war, the major watershed in classical Greek history.

**HIEU 503 - (3) (IR)**

*Greece in the Fourth Century*

Prerequisite: HIEU 204 or equivalent.

Advanced course in Greek history that examines in detail the social and economic history of Greece from the end of the Peloponnesian War in 404 B.C. to the defeat of the Greek City-states at Chaeronea in 338.

**HIEU 504 - (3) (IR)**

*Roman Republic*

Prerequisite: HIEU 204 or equivalent.

Studies the expansion of Rome from city-state to world empire to the death of Caesar.

**HIEU 505 - (3) (IR)**

*Roman Empire*

Prerequisite: HIEU 204 or equivalent.

Studies the founding and institutions of the Principate, the Dominate, and the decline of antiquity.

**HIEU 506 - (3) (IR)**

*Roman Imperialism*

Prerequisite: HIEU 204 or equivalent.

Examines Roman transmarine expansion to determine how and why it happened, and what consequences it had, both in Rome and abroad.

**HIEU 507 - (3) (IR)**

*Modern Theory*

Prerequisite: One 300-level course in intellectual history.

For students with previous knowledge of philosophy, political, or sociological theory, or religious studies. Discusses three or four major nineteenth- or twentieth-century theorists in depth.

**HIEU 510 - (3) (IR)**

*Early Christian Thought*

Prerequisite: RELC 205 or instructor permission.

Intensive consideration of a selected issue, movement or figure in Christian thought of the second through fifth centuries.

**HIEU 511 - (3) (IR)**

*Early Medieval England*

A documentary history of English society from the late Saxon period to the reign of King John.

**HIEU 512 - (3) (IR)**

*Later Medieval England*

Documentary history of English society from the reign of King John to the death of Richard II.

**HIEU 513 - (3) (IR)**

*Medieval France*

Societies and governments in medieval France from the 11th century to the 14th.

**HIEU 516 - (3) (IR)**

*The Medieval Church*

Studies the history of the Western church within the development of medieval society, from the time of Constantine through the 13th century, based on a study of selected texts.

**HIEU 517 - (3) (IR)**

*Medieval Society: Ways of Life and Thought in Western Europe*

Introduces social and intellectual history from Charlemagne to Dante.

**HIEU 518 - (3) (IR)**

*Historians in the Middle Ages*

Discusses the ways important Latin writers of the medieval period looked at the past.

**HIEU 519 - (3) (IR)**

*War and Society in the Middle Ages*

A documentary history of warfare in Western Europe from the 9th century to the 16th with a discussion of its effect on the political, economic, social, and religious development of the emerging nation states.

**HIEU 520 - (3) (IR)**

*The Culture of the Renaissance*

Prerequisite: Undergraduates require instructor permission.

Surveys the writing of humanists who lived between 1300 and 1600. Topics include the contributions of humanists to the history of education, political theory, religion, gender relations, and artistic theory. Authors include Petrarch, Machiavelli, Thomas More, and Erasmus.

**HIEU 521 - (3) (IR)**

*Early Modern Germany, 1350-1750*

Studies late medieval politics, economy, and culture, including the Reformation, Counter-Reformation, and Wars of Religion; pietism and the baroque.
HIEU 522 - (3) (IR)
English Social History, 1550-1800
Prerequisite: undergraduates by instructor permission.
Provides a survey of major themes in English social history, examining agriculture, rural community structures, demography, urban life, religious, political, and legal practices, popular culture, and relations between men and women.

HIEU 524 - (3) (IR)
The Carolingian World
Prerequisite: minimum of one course in pre-modern European history, preferably in medieval history, or permission of the instructor.
Addresses the political, social and cultural history of continental Western Europe in the period c. 700 to 850.

HIEU 526 - (3) (IR)
Russian History to 1700
Prerequisite: Instructor permission.
Selected topics in the evolution of the Russian peoples to the reign of Peter the Great.

HIEU 527 - (3) (IR)
The Age of Russian Absolutism, 1613-1855
Intensive study of Russian history from the reign of the first Romanov tsar to the defeat in the Crimean War. Concentrates on the evolution of absolutism in Russia and the effects of the changes introduced by Peter the Great.

HIEU 530 - (3) (IR)
Nationality, Ethnicity, and Race in Modern Europe
Prerequisite: One course in modern European history or instructor permission.
Colloquium on how categories of human identity have been conceived, applied, and experienced in Western and Eastern Europe from 1789 to the present. Topics include the construction of identities, national assimilation, inter-confessional conflict, colonialism, immigration, and the human sciences.

HIEU 544 - (3) (IR)
Modernity, Postmodernity, and History
Prerequisite: Instructor permission.
An examination of modernity and postmodernist theory in relation to issues of time and historical change. Such writers as Baudrillard, Danto, Deleuze, Derrida, Foucault, Habermas, Heidegger, Kolakowski, Lyotard, and Vattimo, as well as other authors critically commenting on them, will be considered.

HIEU 554 - (3) (IR)
The History of Twentieth-Century Europe, 1900-1941
An intensive study of monograph literature dealing with the first half of the 20th century, concentrating on some major problems that have incited scholarly controversy.

HIEU 556 - (3) (IR)
The German World After 1918
Studies the problems in German politics and society, including those of Austria, Switzerland, and such border areas as Alsace-Lorraine, Luxemburg, and the German regions of Czechoslovakia.

HIEU 558, 557 - (3) (IR)
British History Since 1760
Prerequisite: Instructor permission.
Readings and discussion on selected topics in British history since the reign of George III.

HIEU 559 - (3) (IR)
The British Economy Since 1850
Studies the structure, performance and policy in the British economy since 1850, focusing on the causes and consequences of Britain’s relative economic decline. Cross-listed as ECON 507.

HIEU 561 - (3) (IR)
The Age of Reform and Revolution in Russia, 1855-1917
Addresses the social and political effects of efforts to modernize and industrialize Russia, which led to the growth of political and revolutionary opposition and the overthrow of the monarchy.

HIEU 562 - (3) (IR)
Russia Since 1917
Prerequisite: Instructor permission.
Readings and discussion of the causes for the collapse of the Tsarist regime and the triumph of the Bolsheviks. Examines the development of the Soviet state.

HIEU 564 - (3) (IR)
Russian and Soviet Diplomatic History
Prerequisite: Instructor permission.
An examination, through readings and discussion, of aspects of Soviet diplomatic history between the wars; attempts by the revolutionary regime to overthrow the capitalist states and to coexist with them; and the road to World War II.

HIEU 566 - (3) (IR)
Nineteenth Century Russian Intellectual History
Prerequisite: Instructor permission.
Readings and discussion of seminal Russian intellectuals and their ideas under the later Romanov Tsars.

HIEU 567 - (3) (IR)
Russian Social History
Prerequisite: Instructor permission.
Readings and discussion on selected topics in Russian social history during the 19th and early 20th centuries.

HIEU 572 - (3) (IR)
Germany 1500-2000
Prerequisite: Advanced undergraduates with prior coursework in European History or graduate status.
A comparison of topics from early modern German history with their modern manifestations. Topics such as the history of warfare, death, religion, politics, intellectual life, and the economy are considered.

HIEU 573 - (3) (IR)
European Social History
Prerequisite: Instructor permission.
Reading and discussion of the evolution of private life, emphasizing methodology and the interpretation of sources in social history.

HIEU 575 - (3) (IR)
Evolution of the International System, 1815-1950
Prerequisite: Graduate status or instructor permission.
Studies the evolution of great-power politics from the post-Napoleonic Congress of Vienna and the systems of Metternich and Bismarck to the great convulsions of the twentieth century and the Russo-American Cold War after World War II. Covers same thematic material as HIEU 375 on a more intensive level.

HIEU 577 - (3) (IR)
History of Modern Science
Reading and discussion on selected topics in the history of the natural and social science since 1600.

HIEU 578, 579 - (3) (IR)
European Intellectual History
Prerequisite: Instructor permission.
Reading, discussion, and papers on selected topics in European intellectual history since the 17th century.

HIEU 580 - (3) (IR)
Postmodernism: Contexts and Anticipations
Prerequisite: Some modest prior background in intellectual history, philosophy, literature, art, architecture, or music.
Studies the notions of postmodernism and postmodernity. The names are recent and much in dispute, but the various phenomena they designate seem interesting and important. Plays postmodernism off against modernism in its several senses (aesthetic, sociological, philosophical), and examines earlier anticipations of the recent intellectual conflict.

HIEU 701 - (3) (Y)
Colloquium in Medieval European History
The first semester of a two-semester sequence of graduate colloquia introducing students to the major themes in European history and historiography in the period between the eighth century and structured around central themes in medieval history.

HIEU 702 - (3) (Y)
Colloquium in Early Modern European History
The second semester of a two-semester sequence of graduate colloquia introducing students to the major themes in European history and historiography in the period before the eighteenth century and structured around central themes in early modern European history.

HIEU 703 - (3) (Y)
Colloquium in Modern European History I
The first semester of a two-semester sequence of graduate colloquia introducing students to the major themes in European history and historiography in the period from the eighteenth century to the present and structured around central themes in European history between c. 1750 and c. 1870.

HIEU 704 - (3) (Y)
Colloquium in Modern European History II
The second semester of a two-semester sequence of graduate colloquia introducing students to the major themes in European history and historiography in the period before the eighteenth century to the present and structured around central themes in European history c. 1870.

HIEU 705 - (3) (IR)
Historiography
Introduces the theory of historiography. Examines various works of historiographical theory (Collingwood, Veyne, Ricoeur, and others), bringing them to bear on a sampling of historical writing.

HIEU 706 - (3) (IR)
Roman Religion
Examines the institutions, practices, and attitudes associated with Roman religion, focusing chiefly on aspects of Roman religion as practiced in the city of Rome itself, and devoting itself primarily to the Republican and early imperial periods. Cross-listed as LATI 706.

HIEU 707 - (3) (IR)
Anthropology of Ancient Greece
A survey of anthropological methods useful for the study of the past: simultaneously an economic introduction to the Great Books of anthropology, to a prominent aspect of contemporary classical scholarship, and to the opportunities and problems presented by using the methods of one field to illuminate another.

HIEU 708 - (3) (IR)
Ancient History
Introduces non-literary materials of use to the historian in correcting and/or amplifying the literary record, including inscriptions, papyri, coins, etc.

HIEU 711 - (3) (IR)
Medieval History
Reading and discussion of selected topics in medieval history.

HIEU 721 - (3) (IR)
The Renaissance
Studies European politics and society from the commercial revolution to Cateau Cambries.

HIEU 722 - (3) (IR)
The Age of Reformation
Surveys current problems in the history of the religion, science, philosophy, politics, economics, and social structure. Covers Europe (especially England, France, Germany, and Italy), 1550-1750.

HIEU 723 - (3) (IR)
Early Modern Europe
A colloquium on central topics of European history, 1400-1789, emphasizing developments in social, political, economic, and cultural history.

HIEU 724 - (3) (IR)
Popular Religion 1300-1800
Traditionally, the history of religion was limited to the study of formal theology and ecclesiastical institutions. It has now become common to ask what the religious ideas and experience of ordinary people was, and to examine the connection between formal dogma and lay piety. Course introduces some of the most exciting works of this new direction and establishes bridges between history and religious studies, between the late medieval and early modern periods, and between intellectual and social history. Cross-listed as RELC 724.

HIEU 726 - (3) (IR)
Early Modern England
Readings and discussion on special topics in the period 1485 to 1760.

HIEU 727 - (3) (IR)
Early Modern Inquisitions
Prerequisite: Graduate students or instructor permission.

HIEU 729 - (3) (IR)
Modern European Social History
A comparative approach to major changes and problems in political, social, and cultural history.

HIEU 730 - (3) (IR)
History of Science
Introduces the historiography of science, and especially to new approaches which integrate the history of the natural and social sciences into intellectual, social, political, and economic history.

HIEU 731 - (3) (IR)
The Enlightenment
Intensive reading and discussion of the primary and secondary literature.

HIEU 732 - (3) (IR)
Europe in the Eighteenth Century and Revolutionary Period
Intensive readings on Europe, 1715-1799, emphasizing the origins of the French Revolution.

HIEU 733 - (3) (IR)
The Fortune of Gender in Early Modern Europe
After tracing the emergence in the 1790s of the history of women and a decade later the history of gender as coherent modes of investigation, we shall examine recent developments and tensions in these fields by discussing important monographs and collections of essays.

HIEU 739 - (3) (IR)
Europe Since 1789
Intensive reading and discussion of topics in comparative European history since 1789.

HIEU 740 - (3) (IR)
Nineteenth-Century Europe
Intensive reading and discussion of the secondary literature.

HIEU 745 - (3) (IR)
Twentieth-Century Europe
Intensive reading in selected topics, emphasizing new or emerging nations in Europe.

HIEU 750 - (3) (IR)
Modern France
Prerequisite: HIEU 350 or equivalent.

HIEU 756 - (3) (IR)
Modern European Intellectual History
Selected literature in modern European intellectual history, broadly defined.

HIEU 778 - (3) (IR)
Russian Social and Cultural History, 1815 to the Present
A comparative approach, through readings and discussion, to trends in social and cultural history during the last century of the monarchy and in the Soviet period.

HIEU 801 - (3) (IR)
Ancient History
Topics to be chosen by the instructor.

HIEU 802 - (3) (Y)
Intermediate Research Seminar
Prerequisite: An 800-level course or instructor permission.

HIEU 811 - (3) (IR)
Medieval History

HIEU 821 - (3) (IR)
The Renaissance
The Reformation  
A research seminar.

HIEU 823, 824 - (3) (IR)  
Early Modern Europe  
A research seminar in topics pertaining to the history of Europe in the 16th, 17th, and 18th centuries. Offered as required.

HIEU 825 - (3) (IR)  
History of Russian Empire  
Topics to be chosen by the instructor. Offered as required.

HIEU 826 - (3) (IR)  
Early Modern England  
A research seminar.

HIEU 833 - (3) (IR)  
Saints and Society  
Prerequisite: Graduate student status in History or another humanities discipline.  
This seminar examines Christian holy people in medieval and early modern Europe, and in other regions coming under European influence. With emphasis on change over time, topics include popular perceptions and official definitions of holiness, literary and artistic genres in which holiness was represented, differences between the Catholic Church’s and other denominations’ use of holy people.  
Major research paper required.

HIEU 840 - (3) (IR)  
Nineteenth-Century European History  
Reading and research in selected topics, with emphasis on Germany and Austria.

HIEU 845 - (3) (IR)  
Twentieth-Century Europe  
A research seminar.

HIEU 846 - (3) (IR)  
Twentieth-Century Europe and Russia  
For students working in any geographical area of 20th-century Europe. Topics selected by students in consultation with instructor. Helps students begin research for M.A. theses and doctoral dissertations.

HIEU 856 - (3) (IR)  
Victorian England  
A research seminar.

HIEU 864, 865 - (3) (IR)  
Soviet Domestic and Foreign Policy  
Offered as required.

HIEU 867 - (3) (IR)  
Russian History  
A discussion of selected problems in Russian history during the late Imperial and Soviet periods with emphasis upon political, social, and cultural history.

HIEU 878 - (3) (IR)  
Modern European Intellectual History  
A research seminar.

HILA 501 - (3) (IR)  
Colonial Latin American History  
Prerequisite: Advanced undergraduates with consent of instructor and graduate students with a reading knowledge of Spanish.  
An intensive reading program in the historiography of major issues of the colonial field, in preparation for graduate-level research.

HILA 502 - (3) (IR)  
Modern Latin American History  
Prerequisite: Advanced undergraduates with consent of instructor and graduate students with a reading knowledge of Spanish.  
An intensive reading program in the historiography of major issues of the modern field, in preparation for graduate-level research.

HILA 701 - (3) (IR)  
Colonial Latin America  
A readings course open to graduate students with a reading knowledge of Spanish.

HILA 702 - (3) (IR)  
Modern Latin America  
A readings course open to graduate students with a reading knowledge of Spanish.

HILA 801 - (3) (IR)  
Colonial Latin America  
A research seminar open to graduate students with a reading knowledge of Spanish or Portuguese.

HILA 802 - (3) (IR)  
Modern Latin America  
A research seminar open to graduate students with a reading knowledge of Spanish or Portuguese.

Middle Eastern History  

HIME 502 - (3) (IR)  
Revolution, Islam and Gender in the Middle East  
Comparative study of revolutions in 20th-century Turkey, Egypt, Algeria, and Iran, with particular reference to colonial and post-colonial class, religious, and gender movements.

HIME 701 - (3) (IR)  
History and Historiography of the Middle East, ca. 570-1500  
Prerequisite: HIME 201.  
Introduces the history and historiography of the medieval Middle East and North Africa (areas from Morocco to Iran) from the period immediately preceding the rise of Islam until the Mongol invasions of the 13th century. Primarily a readings-and-discussion colloquium devoted to political, social, economic, and cultural evolution of the regions and peoples situated in arid and semi-arid zones stretching from Gibraltar to the Oxus River. After surveying the general contours of the field, and isolating the principal scholarly approaches to it, the course proceeds chronologically, starting with the Byzantine and Sassanian Empires in the 6th century and concluding with assessment of the Turko-Mongolian impact upon the historical configuration of the regions.

HIME 702 - (3) (IR)  
History and Historiography of the Middle East, ca. 1500-Present  
Prerequisite: HIME 201, 202, or HIME 701.  
Introduces the history and historiography of the early modern and modern Middle East and North Africa from the period of the Ottoman and Safavid Empires until the emergence of a system of nation-states in the 20th century. Primarily a readings-and-discussion colloquium devoted to the political, social, economic, and cultural history of the region.

HISA 510 - (3) (IR)  
Economic History of India  
Studies regional economic systems prior to European penetration; the establishment and growth of European trading companies in the 17th and 18th centuries; commercialization of agriculture; the emergence of a unified Indian economy in the 19th century; and industrialization and economic development in the 20th.

HILA 703 - (3) (IR)  
Social History of Modern India  
Applies social science methods and concepts to the study of modern India.

HISA 502 - (3) (IR)  
Historiography of Early Modern South Asia  
Analyzes historical sources and historians of political systems in Muslim India until the rise of British power.

HISA 701 - (3) (IR)  
Society and Politics in Eighteenth-Century India  
Examines the social, political, cultural, and economic configurations of South Asia from the Mughal decline to British paramountcy, 1720-1818, using original sources and translations.

HISA 702, 705 - (3) (IR)  
Readings in Indian History  
For graduate students with no background in South Asian history; consists of attendance at the lecture sessions of HISA 202, 203, and directed readings on the growth of social and cultural institutions in South Asia.

HISA 711 - (3) (IR)  
Peasant Movements in Modern India  
Considers agrarian relationships and the economic conflict in those relations that give rise to peasant movements in the 19th and 20th centuries. Discussions are based on texts concerned with peasant societies.

HISA 801 - (3) (IR)  
Society and Politics in Eighteenth-Century India  
Examines the social, political, cultural, and economic configurations of South Asia from the Mughal decline to British paramountcy, 1720-1818, using original sources and translations.

HISA 802 - (3) (IR)  
Readings and Research in the History of Early Modern South Asia  
Reading and research in the history of India, Pakistan, and other states of the subcontinent.

HISA 803 - (3) (IR)  
Readings and Research in the History of Modern South Asia  
Reading and research in the history of the Indian subcontinent in the modern period.

HISA 811 - (3) (IR)  
Peasant Movements in Modern Indian History  
A workshop seminar on peasant movements in modern India, Bengal Desh, and Pakistan utilizing original documents.
HIST 501, 502 - (3) (IR)
Documentary Editing: Procedures and Practice
Prerequisite: Instructor permission.
The principles and methods of interpreting and editing historical manuscripts, emphasizing the colonial and early national periods.

HIST 503 - (3) (IR)
Quantitative Analysis of Historical Data
Prerequisite: Introductory course in statistics or instructor permission.
The social scientific approach to historical inquiry, the formulation of theories, and their testing with historical data. Includes extensive directed readings in quantitative history and training in quantitative methods, sampling, the organization of a data-set, and data analysis.

HIST 504 - (3) (IR)
Monticello Internship
Prerequisite: Instructor permission; graduate status or fourth-year undergraduate history majors.
Directed research, largely in primary source materials, on topics relating to Jefferson's estate, life, and times. Directed by senior members of the Monticello staff. A maximum of two students each semester are admitted to the course.

HIST 505 - (3) (IR)
History, Memory, Subjectivity
Considers a portion of the very extensive, and growing, literature on issues of memory, subjectivity, and historical evidence. "Memory" is taken in a broad sense, to include not only the recall and narrativization of experience but also tradition and commemoration, since in the historical literature these different senses of memory are often mixed together. Students must find their own paper topics, and are encouraged to discuss the course with the instructor in advance.

HIST 506 - (3) (SI)
Philosophy of History
Examines the theoretical presuppositions of historical research and writing.

HIST 507 - (3) (IR)
Internship in History: Interpreting African-American Life at Thomas Jefferson's Monticello
This internship program, devised and presented by Monticello staff, and offered in conjunction with UVA, is designed for students interested in the interpretation of African-American history to the public. The interns are trained as historical interpreters and to present Monticello's Plantation Community tour. This walking tour explores Mulberry Row, the center of plantation activity where enslaved African-American families lived and worked, and examines the philosophical issue of Thomas Jefferson and slavery. Lectures, discussions and readings cover the historical content and interpretive techniques that allow interns to develop their individualized Plantation Community tours.

HIST 509 - (3) (Y)
Multiculturalism in the Ottoman Empire
Study of how a large empire governed a diverse population, between 1453 and 1981, from the perspective of concerns about recent nationalist, racial and ethnic conflicts in modern nation-states. Course first examines how the Ottomans managed relations between ethnic and religious groups to 1750. Course then examines reasons for increased communal conflict after 1750, and Ottoman efforts to re-engineer relations among groups along liberal, constitutional lines.

HIST 511 - (3) (IR)
Slave Systems in Africa and the Americas
Historical study of the growth and evolution of the systems of "slavery" in Africa, the American South, and Latin America (including the Caribbean).

HIST 513 - (3) (IR)
The Atlantic Slave Trade
Studies the growth and development of the international slave trade from Africa to the New World from the 15th to the 19th centuries.

HIST 705 - (3) (IR)
Economic History
Prerequisite: Some background in economics, particularly micro-economics.
In-depth exploration of selected problems in United States economic history.

HIST 706 - (3) (IR)
Comparative Readings in British America and Latin America Before 1800
Graduate colloquium devoted to comparative readings in colonial Latin America and colonial British America, co-taught by specialists in each of the respective fields. Identifies broad areas of similarity and contrast in the settlement and development of the two colonial societies.

HIST 707 - (3) (IR)
Methods in Social History
A colloquium open to students in all fields and periods. Examines new approaches, methods, and subject matter in the broad area of social history.

HIST 708 - (3) (IR)
Colloquium in Methodological Perspectives
Surveys different methodological perspectives currently exhibited in historical scholarship, such as social history, intellectual history, political history, feminist history, and economic history, as reflected in distinctive works of scholarship.

HIST 711 - (3) (IR)
Modern French Imperialism
Topics in the study of France's political, social, and cultural influence in Africa and Asia since 1798. Emphasis on indigenous perspectives of those who lived under French colonial rule in the Middle East and North Africa.

HIST 720 - 3 (IR)
History of Environment and Technology
This seminar introduces graduate students to environmental history and the history of technology, with an emphasis on their overlap. Environmental historians study the role of nature in the human past. Historians of technology examine the role of tools in history. This course emphasizes the synthesis of ideas from both fields to help us understand environmental, technological, and social change. Students read, discuss, and write about classic and new works of scholarship.

HIST 801 - (3) (IR)
Summer Research Seminar
Prerequisite: Permission of the director of graduate studies or chair of the department.
A general research seminar for students needing to meet seminar requirements for the M.A. or Ph.D. degrees during the nine-week summer session. Not open to degree candidates enrolled during the regular academic session.

HIST 805 - (3) (IR)
Economic History
Prerequisite: Some background in economics, particularly micro-economics.
In-depth exploration of selected problems in United States economic history.

HIST 821 - (3) (IR)
English Legal Thought
Studies English legal thought in the nineteenth century, particularly the background, opinions, and conception of law held by Blackstone, Bentham, John Austin, Lord Eldon, Sir Henry Maine, Sir James Fitzjames Stephen, A.V. Dicey, and F.W. Maitland. (See School of Law listing.)

HIST 822 - (3) (IR)
English Legal History
Research seminar on topics of eighteenth- and nineteenth-century English legal history. Limited (if necessary) to 18, and preference is given (if necessary) to those who have taken English Legal Thought.

HIST 842 - (3) (IR)
Writing Transnational History
This seminar will focus on ways of writing about the past that transcend the limitations of strictly national history. Students will be encouraged to develop substantial research projects concerning the movement of individuals, peoples, goods, or ideas across national boundaries or the establishment of transnational and/or colonial relationships, associations, or spaces.

HIST 897 - (3-12) (IR)
Non-Topical Research, Preparation for Research
For master's research, taken before a thesis director has been selected.

HIST 898 - (3-12) (IR)
Non-Topical Research
For master's research, taken under the supervision of a thesis director.
**HIST 901, 902 - (3) (IR)**

**Advanced Research Seminar**

*Prerequisite: Third-year standing in the graduate program, or permission of the graduate committee.*

A general research seminar for students preparing for the oral qualifying examination and for the dissertation.

**HIST 993 - (3) (IR)**

**Independent Research**

**HIST 995 - (3) (IR)**

**Supervised Research**

Normally required of first-year graduate students in the second semester. Reading and/or research in particular fields under supervision of an instructor.

**HIST 996 - (3) (IR)**

**Independent Research**

**HIST 997 - (3-12) (IR)**

**Non-Topical Research, Preparation for Doctoral Research**

For doctoral research, taken before a dissertation director has been selected.

**HIST 999 - (3-12) (IR)**

**Non-Topical Research**

For doctoral dissertation, taken under the supervision of a dissertation director.

---

**United States History**

**HIUS 701, 702 - (6) (IR)**

**Introductory Colloquium in American History**

American history from 1607 to the present, emphasizing major themes in recent historiography.

**HIUS 703 - (3) (IR)**

**Social History of Early America**

American social history through intensive readings on historical demography, immigration, the family, and social structure.

**HIUS 704 - (3) (IR)**

**The Early American Republic, 1783-1830**

Reading and discussion in national political history from 1789 to 1815.

**HIUS 705 - (3) (IR)**

**Antebellum America**

Studies selected problems and developments in the period 1830-1860 through reading and discussion.

**HIUS 706 - (3) (IR)**

**New Approaches to American Political History**

Studies the 19th century, introducing the new conceptual and methodological approaches historians and political scientists have brought to bear on American political history. Explores critical realignment, collective biography, content analysis, legislative roll-call analysis, and popular voting analysis.

**HIUS 707 - (3) (IR)**

**Civil War and Reconstruction**

Studies selected problems and developments through reading and discussion.

**HIUS 710 - (3) (IR)**

**Early American Military History**

Introduces the military history of the American colonies and the U.S. between 1689-1815. Topics include the history of early conflicts with the Indians; the colonial wars; the American Revolution; and the War of 1812. Explores the significance of warfare for the emerging republican culture of the U.S., focusing on the social contexts of war as these have been revealed in the “new military history.”

**HIUS 713 - (3) (IR)**

**The Emergence of Modern America, ca. 1870-ca. 1930**

Studies the distinctive characteristics of American modernity as they emerged in the period from the end of reconstruction to the 1930s. Concentrates on the interplay between large national changes and local life as America became a world power. Investigates the reciprocal relations between society and politics, social organization and science and technology, large-scale bureaucratic organizations and the changing class structure, culture, and ideology.

**HIUS 714 - (3) (IR)**

**The New Deal Order, 1929-1973**

Studies the rise and fall of domestic liberalism and the political economy that sustained it.

**HIUS 715 - (3) (IR)**

**The United States, 1945-Present**

An intensive reading course emphasizing historiographic approaches to synthesizing post-war America.

**HIUS 716 - (3) (IR)**

**The United States, 1945-Present**

This is a readings and discussion course on U.S. history from 1945 to the present. Students will be graded based upon participation in discussion and short historiographic essays.

**HIUS 717 - (3) (IR)**

**The American Culture of Consumption, 1920-1990**

An intensive readings course exploring the cultural, social, and political implications and evolution of consumption.

**HIUS 719 - (3) (IR)**

**History of Technology: Theory and Methods**

Examines the role of technology in both American history and world history. Readings introduce major issues and methodology. No technical or scientific expertise required.

**HIUS 723 - (3) (IR)**

**The American South Before 1900**

Surveys major themes and interpretations of the American South, especially 19th century.

**HIUS 724 - (3) (IR)**

**The South Since 1900**

A colloquium on selected themes in 20th century southern history.

**HIUS 725 - (3) (IR)**

**Southern History**

Reading and discussion on selected topics of southern history.

**HIUS 726 - (3) (IR)**

**American Political Development in Action**

Readings drawn from the leading works in this field that span history, political science, and sociology. Students will also attend colloquia where works in progress will be presented by leading scholars.

**HIUS 730 - (3) (IR)**

**American Studies Seminar**

A co-taught, interdisciplinary seminar combining the study of a chronological period with a significant focus on the implications of the material for public historians. Includes the disciplines of art history, architecture, literature, anthropology, archaeology, music, government, and history. Period of focus is defined by co-faculty.

**HIUS 745 - (3) (IR)**

**Urban History**

Reading and discussion of primary and secondary sources focused on different topics annually.

**HIUS 747 - (3) (IR)**

**American Labor History**

Readings and discussion on U.S. working class, including its institutions, consciousness, social composition, politics.

**HIUS 748 - (3) (IR)**

**Approaches to Social History**

Study of the relationships between social history and other disciplines through readings and discussions about broad interpretative problems in 19th and 20th century American society.

**HIUS 751 - (3) (IR)**

**The History of United States Foreign Relations**

Colloquium on selected themes and topics in the history and historiography of U.S. foreign relations.

**HIUS 755 - (3) (IR)**

**American Legal History**

Intensive study along topical and chronological lines of the ways in which fundamental legal forms—federalism or property or contract—have shaped (and been shaped by) American politics and society from the eighteenth century to the recent past.

**HIUS 757 - (3) (IR)**

**Topics in American Intellectual History**

*Prerequisite: HIUS 578, 579 or the equivalent.*

Studies selected aspects and problems in the history of American thought.

**HIUS 758 - (3) (IR)**

**Nineteenth-Century American Social and Cultural History**

Reading and discussion of primary and secondary sources.

**HIUS 761 - (3) (IR)**

**Women’s History**

Readings and discussion on selected topics in the history of women in the U.S.
HIUS 802 - (6) (IR)
First-Year Seminar in American History
A seminar for master’s candidates in American history, emphasizing research methods and techniques, writing, and general historiographical approaches to American history.

HIUS 803 - (3) (IR)
The Nineteenth-Century South
Examines special problems, with critical analysis of papers presented by students. Focus of study is national rather than sectional.

HIUS 804 - (3) (IR)
The Civil War and Reconstruction
Examines special problems, with critical analysis of papers presented by students. Focus of study is national rather than sectional.

HIUS 805 - (3) (IR)
Antebellum America
Research on selected topics in the period 1830-1860.

HIUS 806 - (3) (IR)
Nineteenth-Century American Political History
Research on selected topics in American political history, 1840-1880. Students write a research paper utilizing one or more of the techniques and concepts studied the first semester.

HIUS 812 - (3) (IR)
American Legal History
Directed research in selected areas of American legal history.

HIUS 815 - (3) (IR)
American Legal History
Directed research in selected areas of American legal history.

HIUS 816 - (3) (IR)
Graduate Seminar in Women’s History
Examines American women’s history culminating in the composition of an original research paper based on primary source materials from any era. Paper either deals with some aspect of the history of American women or examines the history of gender relations. Includes peer readings and critiques.

HIUS 851 - (3) (IR)
The History of United States Foreign Relations
A research seminar.

HIUS 855 - (3) (IR)
American Legal History
Directed research in selected areas of American legal history.

HIUS 856 - (3) (IR)
Lawyers in American Public Life
Reading and biographical research on the legal profession and the role of lawyers in American government and politics since 1789.

HIUS 857 - (3) (IR)
Nineteenth-Century American Social and Cultural History
A research seminar.

HIUS 861 - (3) (IR)
Graduate Seminar in Women’s History
Examines American women’s history culminating in the composition of an original research paper based on primary source materials from any era. Paper either deals with some aspect of the history of American women or examines the history of gender relations. Includes peer readings and critiques.

HIUS 867 - (3) (IR)
The Civil Rights Movement
A research seminar on the ideas, individuals, social forces, protest movements, and public policies that dismantled the southern system of segregation and disfranchisement.

Requirements
Master of Arts Degree
A minimum of 30 credits, 18 from elective courses and 12 credits as follows: LNGS 701; LNGS 702, or ANTH 748; a course in the structure of a modern or ancient language (this must be a linguistics course; language courses do not count toward the linguistics graduate degree); a course in theoretical linguistics. The latter two courses, as well as the remaining 18 credits from elective courses, are chosen in consultation with an advisor.

Comprehensive Examination
All students must pass a comprehensive qualifying examination, normally offered in the spring of the second year, consisting of written and oral components.

Thesis (optional)
Three of the total 30 credits may be devoted to writing a thesis. This option is recommended for those who plan to move on to a Ph.D. program in linguistics. Before beginning a thesis, a student must have successfully completed both parts of the comprehensive examination, and must submit a written thesis proposal signed by two members of the linguistics committee before beginning the thesis.

Language Requirement
Reading knowledge of French or German is required. Competency is determined by written examination. Other languages may be substituted by petition to the linguistics committee.

Course Descriptions
LING 501 - (3) (IR)
Synchronic Linguistics
Prerequisite: LNGS 701 and instructor permission.

LING 506 - (3) (IR)
Syntax and Semantics
Prerequisite: LNGS 325 and permission of the instructor.

LING 507 - (3) (SI)
Syntactic Theory
Prerequisite: LNGS 325 and permission of the instructor.

LING 510 - (1-3) (S)
Teaching Practicum - ESL
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 525, 526</td>
<td>(3) (SI)</td>
<td>Romance Linguistics</td>
</tr>
<tr>
<td>LING 545</td>
<td>(3) (IR)</td>
<td>Language Learning and Teaching</td>
</tr>
<tr>
<td>LING 591</td>
<td>(3) (O)</td>
<td>Grammatical Concepts in Foreign Language Learning</td>
</tr>
<tr>
<td>LING 601</td>
<td>(2) (SS)</td>
<td>Between Two Cultures, Between Two Languages</td>
</tr>
<tr>
<td>LING 545</td>
<td>(3) (Y)</td>
<td>Elementary Sanskrit I</td>
</tr>
<tr>
<td>LING 592</td>
<td>(3) (O)</td>
<td>Historical and Comparative Linguistics</td>
</tr>
<tr>
<td>LING 701</td>
<td>(3) (Y)</td>
<td>Linguistic Theory and Analysis</td>
</tr>
<tr>
<td>LING 897, 898</td>
<td>(3) (S)</td>
<td>Non-Topical Research</td>
</tr>
<tr>
<td>LING 901, 902</td>
<td>(3) (S)</td>
<td>Directed Research</td>
</tr>
<tr>
<td>ANTH 504</td>
<td>(3)</td>
<td>Linguistic Field Methodology</td>
</tr>
<tr>
<td>ANTH 540</td>
<td>(3)</td>
<td>Linguistic Anthropology</td>
</tr>
<tr>
<td>ANTH 542</td>
<td>(3)</td>
<td>Twentieth Century Linguistics</td>
</tr>
<tr>
<td>ANTH 544</td>
<td>(3) (E)</td>
<td>Morphology</td>
</tr>
<tr>
<td>ANTH 545</td>
<td>(3)</td>
<td>African Languages and Folklore</td>
</tr>
<tr>
<td>ANTH 549</td>
<td>(3)</td>
<td>Selected Topics in Theoretical Linguistics and Linguistic Anthropology</td>
</tr>
<tr>
<td>ANTH 741</td>
<td>(3)</td>
<td>Sociolinguistics</td>
</tr>
<tr>
<td>ANTH 745</td>
<td>(3)</td>
<td>American Indian Languages</td>
</tr>
<tr>
<td>ANTH 748</td>
<td>(3)</td>
<td>Language and Prehistory</td>
</tr>
<tr>
<td>SANS 501</td>
<td>(3) (Y)</td>
<td>Elementary Sanskrit I</td>
</tr>
<tr>
<td>SANS 502</td>
<td>(3) (Y)</td>
<td>Elementary Sanskrit II</td>
</tr>
<tr>
<td>GREE 505</td>
<td>(3)</td>
<td>Comparative Greek and Latin Grammar</td>
</tr>
<tr>
<td>GREE 506</td>
<td>(3)</td>
<td>The History of the Greek and Latin Languages</td>
</tr>
<tr>
<td>ENMD 501</td>
<td>(3)</td>
<td>Introduction to Old English</td>
</tr>
<tr>
<td>ENMD 505, 506</td>
<td>(3)</td>
<td>Old Icelandic</td>
</tr>
<tr>
<td>ENMD 905</td>
<td>(3)</td>
<td>Studies in Early English Philology</td>
</tr>
<tr>
<td>ENMD 981, 982</td>
<td>(3)</td>
<td>Studies in Old English</td>
</tr>
<tr>
<td>ENMD 983, 984</td>
<td>(3)</td>
<td>Studies in Middle English</td>
</tr>
<tr>
<td>ENPG 981</td>
<td>(3)</td>
<td>Philosophy of Composition</td>
</tr>
<tr>
<td>ENLS 801</td>
<td>(3)</td>
<td>Language, Linguistics and Criticism</td>
</tr>
<tr>
<td>ENLS 805</td>
<td>(3)</td>
<td>Language Change and Literary Study</td>
</tr>
<tr>
<td>ENLS 841</td>
<td>(3)</td>
<td>Modern English Grammar</td>
</tr>
<tr>
<td>FREN 529</td>
<td>(3)</td>
<td>Applied Linguistics: French</td>
</tr>
<tr>
<td>FREN 710</td>
<td>(3)</td>
<td>Old French</td>
</tr>
<tr>
<td>FREN 711</td>
<td>(3)</td>
<td>History of the French Language</td>
</tr>
<tr>
<td>FREN 712, 713</td>
<td>(3)</td>
<td>Old Provençal I, II</td>
</tr>
<tr>
<td>GERM 510</td>
<td>(3)</td>
<td>Introduction to Middle High German and the History of the German Language</td>
</tr>
<tr>
<td>GERM 588</td>
<td>(3)</td>
<td>Linguistic Approaches to Literature</td>
</tr>
<tr>
<td>PHIL 750</td>
<td>(3)</td>
<td>Topics in Philosophy of Language</td>
</tr>
<tr>
<td>PSYC 555</td>
<td>(3)</td>
<td>Developmental Psycholinguistics</td>
</tr>
</tbody>
</table>

**Slavic Languages and Literatures**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 501</td>
<td>(3)</td>
<td>Applied Russian Linguistics: Phonology and Morphology</td>
</tr>
<tr>
<td>RUSS 507, 508</td>
<td>(3)</td>
<td>Problems in Methods of Teaching Russian</td>
</tr>
<tr>
<td>RUSS 521</td>
<td>(3)</td>
<td>The Structure of Modern Russian</td>
</tr>
<tr>
<td>RUSS 522</td>
<td>(3)</td>
<td>History of the Russian Language</td>
</tr>
<tr>
<td>RUSS 821</td>
<td>(3)</td>
<td>Advanced Structure of Russian: Phonology and Morphology</td>
</tr>
<tr>
<td>RUSS 822</td>
<td>(3)</td>
<td>Advanced Structure of Russian: Lexicology</td>
</tr>
<tr>
<td>SLAV 525</td>
<td>(3)</td>
<td>Introduction to Slavic Linguistics</td>
</tr>
<tr>
<td>SLAV 592</td>
<td>(3)</td>
<td>Selected Topics in Linguistics</td>
</tr>
<tr>
<td>SLAV 711</td>
<td>(3)</td>
<td>Balkan Studies</td>
</tr>
<tr>
<td>SLAV 742</td>
<td>(3)</td>
<td>Common Slavic</td>
</tr>
<tr>
<td>SLAV 743, 744</td>
<td>(3)</td>
<td>Old Church Slavonic</td>
</tr>
<tr>
<td>SLAV 793</td>
<td>(3)</td>
<td>Independent Study in Slavic Linguistics</td>
</tr>
<tr>
<td>SLAV 851</td>
<td>(3)</td>
<td>History and Structure of East Slavic Languages</td>
</tr>
<tr>
<td>SLAV 853</td>
<td>(3)</td>
<td>History and Structure of the South Slavic Languages</td>
</tr>
<tr>
<td>SLAV 854</td>
<td>(3)</td>
<td>History and Structure of West Slavic Languages</td>
</tr>
<tr>
<td>SLAV 861, 862</td>
<td>(3)</td>
<td>Seminar in Slavic Linguistics</td>
</tr>
<tr>
<td>SPAN 514</td>
<td>(3)</td>
<td>Applied Linguistics in Spanish</td>
</tr>
<tr>
<td>SPAN 531</td>
<td>(3)</td>
<td>Hispanic Sociolinguistics</td>
</tr>
<tr>
<td>SPAN 721</td>
<td>(3)</td>
<td>The Phonology of Spanish</td>
</tr>
<tr>
<td>SPAN 730</td>
<td>(3)</td>
<td>History of the Language</td>
</tr>
</tbody>
</table>
Department of Mathematics
Kerchof Hall
University of Virginia
P.O. Box 400137
Charlottesville, VA 22904-4137
(434) 924-4919
www.math.virginia.edu

Degree Requirements

Programs of Study The Department of Mathematics administers programs leading to the degree of Master of Arts, Master of Science, and Doctor of Philosophy. These programs provide diverse opportunities for advanced study and research in algebra, analysis, topology, and mathematical physics.

The Master of Arts and Master of Science degrees are normally completed within two years, though in some cases, these degrees can be completed in one calendar year (two semesters and a summer session). The M.A. and M.S. programs differ mainly in course requirements. The M.S. degree requires specific courses in algebra, analysis, and topology. In contrast, the course requirements for the M.A. degree are flexible and based on individual needs. The M.A. candidate has two options, one requiring an expository paper for a thesis, and the other substituting additional coursework in place of a thesis.

The Doctor of Philosophy degree is normally completed within five years. Candidates for the Ph.D. must fulfill certain course requirements and examinations beyond the master's level. The most important addition is the Ph.D. dissertation, which is based on original research performed under the supervision of a faculty member.

All full-time graduate students are required, as part of their program, to gain teaching experience by assisting the instruction of undergraduate courses.

Master of Arts Degree

Course Requirements (a) Thesis option: 24 credits of courses approved by the graduate committee at the 500 level or above (some courses from other departments and thesis research can count towards the 24 credits).
(b) Non-thesis option: 30 credits of courses at the 500 level or above (no reading or research courses), which must include MATH 531, 533 (or replacements from among 731, 732, 734) and MATH 551, 552 (or replacements from 751, 752), and cannot include more than 9 credits from other departments.

Thesis (option (a) only): The master's thesis is an expository paper written under the supervision of a faculty advisor.

Examinations A passing grade on the final master's exam (or both parts of the general examination); specific content of the exam should be agreed on by the student and the examiners well in advance. The candidate must be a registered student at the time of the exam, and must finish the degree requirements within three years of passing the exam.

Language Facility in reading mathematical literature in one foreign language (French, German, Russian, Italian, or a substitute acceptable to the department) as confirmed by an examination administered by a member of the department. Two years of undergraduate credit in one of the languages will meet this requirement.

Master of Science Degree The requirements for the M.S. degree are the same as for the M.A. degree, except the program must include MATH 731, 734, MATH 751, 752, MATH 577 and a topology course at the 700 level. Higher-level substitutes may be approved.

Doctor of Philosophy Degree

Course Requirements 72 credits of coursework at the 500 level or above (which may include 18 credits of non-topical research: MATH 897, 898, 997, 999). A student must do satisfactory work in two semesters of analysis (MATH 731, 734), algebra (MATH 751, 752), and topology (MATH 577, 780), or the equivalent.

Examinations Passing grades on two general examinations, chosen from analysis, algebra, and topology, and satisfactory performance on the second-year proficiency examination.

General Examinations The general exams are written exams, which are set and graded by the graduate committee. They test whether the student has the inventiveness and command of basic material to pursue a Ph.D. degree, and are usually taken in the second year of graduate study.

Second-Year Proficiency Examination Students take an informal oral examination on material from two or three selected second-year courses. The exact content of the exam is determined by a panel of faculty members in consultation with the student. Its purpose is to gauge the student's readiness to begin carrying out research in the student's chosen area. It is normally taken in May of the second year. If any deficiencies are noted, the examining panel will make recommendations on how to fix the detected problems and meet again with the student in August.

Language Facility in reading mathematical literature in one language (French, German, Russian, Italian, or a substitute acceptable to the department) as confirmed by an examination administered by a member of the department. Two years of undergraduate credit in one of the languages will meet this requirement.

History of Mathematics Program The requirements for the Ph.D. in the history of mathematics are the same as for the Ph.D. in mathematics, with the exception of the additional language requirements described above. Also, students entering the program must exhibit a strong reading comprehension in two foreign languages, preferably French and German. Students interested in pursuing a Ph.D. in history of mathematics should contact Professor Karen Parshall before submitting an application.

Dissertation and Defense Written under the supervision of the major advisor, the Ph.D. dissertation must contain original contributions to the field of mathematics. The main results of the dissertation are presented at a public oral defense. A committee consisting of the major advisor and three other faculty members (two from within the department and one from outside) must approve the dissertation and defense in order for the dissertation to be considered accepted by the faculty.

Time Limit The Ph.D. may be completed in as few as three years, but must be completed within seven years.

Course Descriptions

MATH 501 - (3) (E) The History of the Calculus
Prerequisite: MATH 231 and 351, or instructor permission.
Studies the evolution of the various mathematical ideas leading up to the development of calculus in the 17th century, and how those ideas were perfected and extended by succeeding generations of mathematicians. Emphasizes primary source materials.

MATH 503 - (3) (O) The History of Mathematics
Prerequisite: MATH 231 and 351, or instructor permission.
Studies the development of mathematics from classical antiquity to the end of the 19th century, focusing on critical periods in the evolution of geometry, number theory, algebra, probability, and set theory. Emphasizes primary source materials.

MATH 510 - (3) (Y) Mathematical Probability
Prerequisite: MATH 132 or equivalent, and graduate standing. Credit cannot be received for both MATH 310 and 510.
Studies the development and analysis of probability models through the basic concepts of sample spaces, random variables, probability distributions, expectations, and conditional probability. Additional topics include distributions of transformed variables, moment generating functions, and the central limit theorem.

MATH 511 - (3) (Y) Stochastic Processes
Prerequisite: MATH 310 and a knowledge of matrix algebra, or instructor permission.
Topics in probability selected from Random walks, Markov processes, Brownian motion, Poisson processes, branching processes, sta-
tionary time series, linear filtering and prediction, queueing processes, and renewal theory.

**MATH 514 - (3) (Y)**

Mathematics of Derivative Securities
Prerequisite: MATH 231 or 122 or its equivalent, and a knowledge of probability and statistics; MATH 310 or its equivalent is recommended.

Topics include arbitrage arguments, valuation of futures, forwards and swaps, hedging, option-pricing theory, and sensitivity analysis.

**MATH 521 - (3) (Y)**

Advanced Calculus with Applied Mathematics
Prerequisite: MATH 231, 325; 351 recommended.

Includes vector analysis, Green’s, Stokes’, divergence theorems, conservation of energy, and potential energy functions. Emphasizes physical interpretation, Sturm-Liouville problems and Fourier series, special functions, orthogonal polynomials, and Green’s functions.

**MATH 522 - (3) (Y)**

Partial Differential Equations and Applied Mathematics
Prerequisite: MATH 521; 351 recommended.


**MATH 525 - (3) (IR)**

Advanced Ordinary Differential Equations
Prerequisite: MATH 231, 325, 351 or instructor permission.

Studies the qualitative geometrical theory of ordinary differential equations. Includes basic well posedness; linear systems and periodic systems; stability theory; perturbation of linear systems; center manifold theorem; periodic solutions and Poincaré-Bendixon theory; Hopf bifurcation; introduction to chaotic dynamics; control theoretic questions; differential geometric methods.

**MATH 531 - (3) (Y)**

Introduction to Real Analysis
Prerequisite: MATH 231, 351.

The basic topology of Euclidean spaces; continuity, and differentiation of functions of a single variable; Riemann-Stieltjes integration; and convergence of sequences and series.

**MATH 533 - (3) (Y)**

Advanced Multivariate Calculus
Prerequisite: MATH 531.

Differential and Integral Calculus in Euclidean spaces; implicit and inverse function theorems, differential forms and Stokes’ Theorem.

**MATH 534 - (3) (Y)**

Complex Variables with Applications
Prerequisite: MATH 231 and graduate standing.

Analytic functions, Cauchy formulas, power series, residue theorem, conformal mapping, and Laplace transforms.

**MATH 551 - (3) (Y)**

Advanced Linear Algebra
Prerequisite: MATH 351 or instructor permission.

Introduction to algebraic systems, including groups, rings, fields, vector spaces, and their general properties, including subsystems, quotient systems, and homomorphisms. Study of basic examples such as permutation groups, polynomial rings, groups, and rings of matrices. Additional topics may include applications to linear algebra and number theory.

**MATH 552 - (3) (Y)**

Introduction to Abstract Algebra
Prerequisite: MATH 351 or 551, or instructor permission.

Structural properties of basic algebraic systems such as groups, rings and fields. A special emphasis is made on polynomials in one and several variables, including irreducible polynomials, unique factorization and symmetric polynomials. Time permitting, such topics as group representations or algebras over a field may be included.

**MATH 554 - (3) (Y)**

Survey of Algebra
Prerequisite: MATH 132 or equivalent and graduate standing.

Surveys groups, rings, and fields, and presents applications to other areas of mathematics, such as geometry and number theory. Explores the rational, real, and complex number systems, and the algebra of polynomials.

**MATH 570 - (3) (O)**

Introduction to Geometry
Prerequisite: MATH 231, 351, or instructor permission.

Topics selected from analytic, affine, projective, hyperbolic, and non-Euclidean geometry.

**MATH 572 - (3) (E)**

Introduction to Differential Geometry
Prerequisite: MATH 231 and 351, or instructor permission.

Topics selected from the theory of curves and surfaces in Euclidean space and the theory of manifolds.

**MATH 577 - (3) (Y)**

General Topology
Prerequisite: MATH 231 and 351, with 331 recommended.

Topological spaces and continuous functions, connectedness, compactness, countability and separation axioms, and function spaces. Time permitting, more advanced examples of topological spaces, such as projective spaces, as well as an introduction to the fundamental group will be covered.

**MATH 583 - (3) (SI)**

Seminar
Prerequisite: MATH 531; corequisite: MATH 552 or instructor permission.

Presentation of selected topics in mathematics.

**MATH 596 - (3) (S)**

Supervised Study in Mathematics
Prerequisite: Instructor permission and graduate standing.

A rigorous program of supervised study designed to expose the student to a particular area of mathematics.

**MATH 700 - (1-3) (Y)**

Seminar on College Teaching
Prerequisite: Graduate standing in mathematics. Discussion of issues related to the practice of teaching, pedagogical concerns in college level mathematics, and aspects of the responsibilities of a professional mathematician. Credits may not be used towards a Master’s or Ph.D. degree.

**MATH 725 - (3) (Y)**

Ordinary Differential Equations and Dynamical Systems
Prerequisite: MATH 531 and linear algebra, or the equivalent.

Topics include well-posedness and stability of dynamical flows, attractors, invariant manifolds and their properties, and dissipative and Hamiltonian systems.

**MATH 731 - (4) (Y)**

Real Analysis and Linear Spaces I
Prerequisite: MATH 531 or equivalent.

Introduces measure and integration theory.

**MATH 732 - (3) (O)**

Real Analysis and Linear Spaces II
Prerequisite: MATH 731, 734, or equivalent.

Additional topics in measure theory. Banach and Hilbert spaces, and Fourier analysis.

**MATH 734 - (4) (Y)**

Complex Analysis I

Studies the fundamental theorems of analytic function theory.

**MATH 735 - (3) (O)**

Complex Analysis II
Prerequisite: MATH 734 or equivalent.

Studies the Riemann mapping theorem, meromorphic and entire functions, topics in analytic function theory.

**MATH 736 - (3) (E)**

Mathematical Theory of Probability
Prerequisite: MATH 731 or equivalent.

Rigorous introduction to probability, using techniques of measure theory. Includes limit theorems, martingales, and stochastic processes.

**MATH 741 - (3) (Y)**

Functional Analysis I
Prerequisite: MATH 734 and 731, or equivalent.

Studies the basic principles of linear analysis, including spectral theory of compact and self-adjoint operators.

**MATH 742 - (3) (E)**

Functional Analysis II
Prerequisite: MATH 741 or equivalent.

Studies the spectral theory of unbounded operators, semigroups, and distribution theory.

**MATH 745 - (3) (IR)**

Introduction to Mathematical Physics
Prerequisite: MATH 531.

An introduction to classical mechanics, with topics in statistical and quantum mechanics, as time permits.

**MATH 751, 752 - (4) (Y)**

Algebra I, II
Prerequisite: MATH 551, 552, or equivalent.

Studies groups, rings, fields, modules, tensor products, and multilinear functions.
Math 753 - (3) (Y)
Algebra III
Prerequisite: Math 751, 752, or equivalent.
Studies the Wedderburn theory, commutative algebra, and topics in advanced algebra.

Math 754 - (3) (Y)
Algebra IV
Further topics in algebra.

Math 760 - (3) (SI)
Homological Algebra
Prerequisite: Math 577.
Examines categories, functors, abelian categories, limits and colimits, chain complexes, homology and cohomology, homological dimension, derived functors, Tor and Ext, group homology, Lie algebra homology, spectral sequences, and calculations.

Math 780 - (3) (Y)
Algebraic Topology I
Prerequisite: Math 552, 577, or equivalent.
Topics include the fundamental group, covering spaces, covering transformations, the universal covering spaces, graphs and subgroups of free groups, and the fundamental groups of surfaces. Additional topics will be from homology, including chain complexes, simplicial and singular homology, exact sequences and excision, cellular homology, and classical applications.

Math 781 - (3) (Y)
Algebraic Topology II
Prerequisite: Math 780.
Devoted to cohomology theory: cohomology groups, the universal coefficient theorem, the Kunneth formula, cup products, the cohomology ring of manifolds, Poincaré duality, and other topics if time permits.

Math 782 - (3) (Y)
Differential Topology
Prerequisite: Math 780.
Topics include smooth manifolds and functions, tangent bundles and vector fields, embeddings, immersions, transversality, regular values, critical points, degree of maps, differential forms, de Rham cohomology, and connections.

Math 783 - (3) (Y)
Fiber Bundles
Prerequisite: Math 780.
Examines fiber bundles; induced bundles, principal bundles, classifying spaces, vector bundles, and characteristic classes, and introduces K-theory and Bott periodicity.

Math 784 - (3) (Y)
Homotopy Theory
Prerequisite: Math 780.
Definition of homotopy groups, homotopy theory of CW complexes, Hurewicz theorem and Whitehead’s theorem, Eilenberg-Maclane spaces, fibration and cofibration sequences, Postnikov towers, and obstruction theory.

Math 825 - (3) (O)
Partial Differential Equations
Prerequisites: Math 741 and 725.

Math 830 - (3) (SI)
Topics in Function Theory
Topics in real and complex function theory.

Math 831, 832 - (3) (Y)
Operator Theory I, II
Topics in the theory of operators on a Hilbert space and related areas of function theory.

Math 836, 837 - (3) (SI)
Topics in Probability Theory and Stochastic Processes
Topics in probability, stochastic processes and ergodic theory.

Math 840 - (3) (SI)
Harmonic Analysis
Studies Banach and C* algebras, topological vector spaces, locally compact groups, Fourier analysis.

Math 845 - (3) (SI)
Topics in Mathematical Physics
Applies functional analysis to physical problems; scattering theory, statistical mechanics, and quantum field theory.

Math 851 - (3) (SI)
Group Theory
Studies the basic structure theory of groups, especially finite groups.

Math 852 - (3) (SI)
Representation Theory
Studies the foundations of representation and character theory of finite groups.

Math 853 - (3) (SI)
Algebraic Combinatorics
Studies combinatorial structures, generating functions, and graph theory using algebraic methods involving group theory, number theory, and linear algebra.

Math 854 - (3) (SI)
Arithmetic Groups
Prerequisite: Math 752.
General methods of analyzing groups viewed as discrete subgroups of real algebraic groups. Additional topics include the congruence subgroup problem.

Math 855 - (3) (SI)
Theory of Algebras
Studies the basic structure theory of associative or nonassociative algebras.

Math 860 - (3) (SI)
Commutative Algebra
The foundations of commutative algebra, algebraic number theory, or algebraic geometry.

Math 862 - (3) (SI)
Algebraic Geometry
Studies the foundations of algebraic geometry.

Math 865 - (3) (SI)
Algebraic K-Theory
Includes projective class groups and Whitehead groups; Milnor’s K2 and symbols; higher K-theory and finite fields.

Math 870 - (3) (SI)
Lie Groups
Studies basic results concerning Lie groups, Lie algebras, and the correspondence between them.

Math 871 - (3) (SI)
Lie Algebras
Studies basic structure theory of Lie algebras.

Math 872 - (3) (SI)
Differential Geometry
Studies differential geometry in the large; connections; Riemannian geometry; Gauss-Bonnet formula; and differential forms.

Math 873 - (3) (SI)
Topology of Manifolds
Prerequisite: Math 577.
Studies regular and critical values, gradient flow, handle decompositions, Morse theory, cobordism theory, Dehn’s lemma in dimension 3, and disk theorem in dimension 4.

Math 880 - (3) (SI)
Generalized Cohomology Theory
Topics include the axiomatic generalized cohomology theory; representability and spectra; spectra and ring spectra; orientability of bundles in generalized cohomology theory; Adams spectral sequence, and stable homotopy.

Math 883 - (3) (SI)
Cobordism and K-Theory
Studies classical cobordism theories; Pontryagin-Thom construction; bordism and cobordism of spaces; K-theory and Bott periodicity; formal groups, and cobordism.

Math 885 - (3) (SI)
Topics in Algebraic Topology
Selected advanced topics in algebraic topology.

Math 888 - (3) (SI)
Transformation Groups
Studies groups of transformations operating on a space; properties of fixed-point sets, orbit spaces; and local and global invariants.

Math 896 - (3-12) (Y)
Thesis

Math 897 - (3-12) (Y)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

Math 898 - (3-12) (Y)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

Math 925 - (3) (Y)
Differential Equations and Dynamical Systems Seminar

Math 931 - (3) (Y)
Operator Theory Seminar

Math 936 - (3) (Y)
Probability Seminar

Math 941 - (3) (Y)
Analysis Seminar

Math 945 - (3) (Y)
Mathematical Physics Seminar

Math 950 - (3) (Y)
Algebra Seminar

Math 952 - (3) (IR)
Coding Theory Seminar
**MATH 980 - (3) (Y)**
Topology Seminar

**MATH 996 - (3-9) (Y)**
Independent Research

**MATH 997 - (3-12) (Y)**
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

**MATH 999 - (3-12) (Y)**
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

The Mathematics Colloquium is held weekly, the sessions being devoted to research activities of students and faculty members, and to reports by visiting mathematicians on current work of interest.

**Department of Microbiology**

Jordan Hall
University of Virginia
P.O. Box 800734
Charlottesville, VA 22908-0734
(434) 924-5111
www.healthsystem.virginia.edu/internet/microbiology

**Degree Requirements**

Qualified students will be accepted for graduate study in this department with a baccalaureate degree in biologic or physical sciences from an approved university or college. Those who have not completed courses in calculus and physical chemistry will be required to do so during the first year of residence. Formal course work will be designed to suit the individual needs of each student and with advice from the microbiology faculty, can be elected from those courses offered by the following departments: microbiology, biology, biochemistry, chemistry, physics, physiology, and others, if appropriate.

As part of the education experience, students will be expected to assist in teaching MATH 702 for one semester only, usually at the end of their own formal course work.

Students must pass a preliminary examination at the end of the first year or during the second year of residence and a qualifying candidacy for the degree of Doctor of Philosophy. Those not admitted to candidacy for the degree of Doctor of Philosophy may, on approval of the faculty, be permitted to complete the requirements for the degree of Master of Science in Biological and Physical Sciences. The degree of Doctor of Philosophy is awarded only on recommendation by the faculty upon satisfactory completion of original research supported by submission and defense of a dissertation.

**Course Descriptions**

**MICR 803 - (5) (Y)**
Fundamental Immunology
Introduces cellular and molecular immunology, emphasizing antigen-specific immune responses. Topics include structure of antigen and antigen recognition structures, development of immunologically competent cells, cell-cell interactions and signaling, development and regulation of different immune responses, and the relationship of basic immunological mechanisms to the control of disease and immunopathology.

**MICR 805 - (4) (Y)**
General and Molecular Genetics
Studies the organization, transmission, function and regulation of prokaryotic and eukaryotic genes. Three lecture hours.

**MICR 808 - (4) (Y)**
Molecular Genetics of Prokaryotes
Prerequisite: MICR 811 or equivalent
Presents the mechanism and regulation of gene expression in bacteriophages and prokaryotic organisms. Emphasizes genetic analysis of complex processes, such as sensory transduction, cell division, and global regulatory circuits. Readings from the current literature supplemented with critical discussion of classic papers in the field.

**MICR 810 - (5) (Y)**
Microbial Pathogenesis
A comprehensive study of the morphology, taxonomy, biochemistry, molecular biology, physiology, and pathogenicity of bacteria and viruses. Five lecture hours.

**MICR 811 - (5) (Y)**
Gene Structure, Expression and Regulation
Studies the molecular biology of bacterial and eukaryotic cells, emphasizing the application of recombinant DNA for elucidation of gene structure, the mechanism of gene expression, and its regulation. Four lecture hours.

**BIMS 812 - (4) (Y)**
Cell Structure and Function
Analyzes current research on the interrelationships of structure and their functions in bacterial and eukaryotic cells. Emphasizes the functions of cellular membranes as related to neuromuscular activities and cellular interactions as related to cancer. Four lecture hours.

**MICR 815 - (4) (Y)**
Molecular Basis of Carcinogenesis
Advanced presentation of the mechanisms of oncogenesis, including discussions on phenotypes of tumor cells, regulation of cell cycle, oncogenes, anti-oncogenes, RNA and DNA tumor virus, tumor progression, and metastasis. Emphasizes mechanisms of proto-oncogene activation, subversion of normal growth control, and inactivation of tumor suppressors which occur in human tumors.

**MICR 820, 821 - (3) (Y)**
Current Topics in Immunology
Prerequisite: MICR 803 or instructor permission
Provides the opportunity to conduct and in-depth, critical review of the current literature in immunology.

**MICR 822 - (4) (Y)**
Chromatin Structure and Function
Examines current research topics in eukaryotic chromosome structure and dynamics.

**MICR 881, 882 - (1) (S)**
Continuing Colloquium in Microbiology
Critical analysis of current research areas in microbiology and related fields. Central topics will be covered seriatim by the staff. Students will present in rotation their analyses of pertinent scientific literature. Two conference hours per week.

**MICR 891, 892 - (0) (S)**
Seminars in Microbiology
Attendance required for all graduate students in microbiology. Topics of current research interest are presented each week by staff, students, or visiting scientists. One hour per week.

**MICR 901, 902 - (3-12) (S)**
Research in Pathogenesis Mechanisms

**MICR 903, 904 - (3-12) (S)**
Research Genetics of Auto Immunity

**MICR 905, 906 - (3-12) (S)**
Research: Molecular Biology of Human Retrovirus

**MICR 909, 911 - (3-12) (S)**
Research Molecular Biology Cancer

**MICR 912, 971 - (3-12) (S)**
Research Intercellular Signaling T Cell

**MICR 913, 914 - (3-12) (S)**
Research Molecular Virology and Viral Pathogenesis

**MICR 915, 974 - (3-12) (S)**
Histronics Transcription Chromatin Structure

**MICR 916, 917 - (3-12) (S)**
Research Moleculares Parasites

**MICR 919, 972 - (3-12) (S)**
Molecular Basis of Cancer Genetics

**MICR 931, 932 - (3-12) (S)**
Research in Molecular Genetics

**MICR 933, 934 - (3-12) (S)**
Research in Genetics and Biochemistry of Cancer Cells

**MICR 937, 938 - (3-12) (S)**
Research in Membranes and Tumors

**MICR 939, 940 - (3-12) (S)**
Research in Immune Therapy

**MICR 943, 944 - (3-12) (S)**
Research in Tumor Virology

**MICR 947, 948 - (3-12) (S)**
Research Human Immunology

**MICR 949, 950 - (3-12) (S)**
Research Signal Tyrros Phosph

**MICR 951, 952 - (3-12) (S)**
Research in Immunology of Cell Surfaces

**MICR 953, 954 - (3-12) (S)**
Research in Molecular Genetics of Yeast

**MICR 955, 956 - (3-12) (S)**
Research Developmental Genetics
MICR 960, 996 - (3-12) (S)
Allergens and Allergic Diseases

MICR 961, 962 - (3-12) (S)
Research in Genetic Control of Transcription

MICR 963, 964 - (3-12) (S)
Research in Biochemistry and Immunology of Cancer Cell Transformation

MICR 973, 974 - (3-12) (S)
Research in Molecular Biology of Cancer

MICR 975, 976 - (3-12) (S)
Research in Molecular Virology

MICR 977, 978 - (3-12) (S)
Research in Molecular Biology of HIV

MICR 981, 982 - (3-12) (S)
Research in Fungal Pathogenesis

MICR 983, 984 - (3-12) (S)
Research in Molecular Virology and Viral Pathogenesis

MICR 985, 986 - (3-12) (S)
Research in T Lymphocyte Activation and Effector Function

MICR 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research

For doctoral research, taken before a dissertation director has been selected.

MICR 999 - (3-12) (S)
Non-Topical Research

For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Molecular Physiology and Biological Physics
UVA Health System
P.O. Box 800736
Charlottesville, VA 22908-0736
(434) 924-5108 Fax: (434) 982-1616
physiograd@virginia.edu
www.healthsystem.virginia.edu/internet/physiograd

Degree Requirements
Candidates for the Doctor of Philosophy degree are required to complete an approved program of courses selected from the following:

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIMS 503</td>
<td>Macromolecular Structure and Function</td>
</tr>
<tr>
<td>BIMS 811</td>
<td>Gene Structure, Expression, and Regulation</td>
</tr>
<tr>
<td>BIMS 812</td>
<td>Cell Structure and Function</td>
</tr>
<tr>
<td>PHY 704</td>
<td>General Physiology or BIMS 832 Graduate Physiology</td>
</tr>
<tr>
<td>PHY 801, 802</td>
<td>Seminar in Physiology</td>
</tr>
<tr>
<td>BIMS 710</td>
<td>Research Ethics Laboratory Rotations</td>
</tr>
</tbody>
</table>

Elective Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIMS 813, 814</td>
<td>Topics in the Molecular Basis of Human Disease</td>
</tr>
<tr>
<td>BIOC 508</td>
<td>Computer Analysis of DNA and Protein Sequences</td>
</tr>
<tr>
<td>BIOP 507</td>
<td>Thermodynamics and Kinetics of Biological Systems</td>
</tr>
<tr>
<td>BIOP 802</td>
<td>Advanced Protein Crystallography/Macromolecular Crystallography</td>
</tr>
<tr>
<td>BIOP 803</td>
<td>Magnetic Resonance Spectroscopy of Macromolecules</td>
</tr>
<tr>
<td>BIMS/PHY 852</td>
<td>Vascular Biology</td>
</tr>
<tr>
<td>PHY 506</td>
<td>Experimental Approaches in Molecular Physiology</td>
</tr>
<tr>
<td>PHY 813</td>
<td>Structure and Function of Biological Membranes</td>
</tr>
<tr>
<td>PHY 862</td>
<td>Neurophysiology</td>
</tr>
</tbody>
</table>

Course Descriptions

PHY 506 - (4) (Y)
Experimental Approaches in Molecular Physiology and Biophysics
Introduces various aspects of molecular biophysics, including structural biology, quantitative studies of molecular interactions, microscopy, electrophysiology, and a number of spectroscopic approaches (UV/vis, FTIR, fluorescence, NMR, EPR, etc.). Techniques and results will be discussed. Students will also present original research papers on the various topics.

PHY 704 - (8) (Y)
General Physiology
Studies selected topics in cellular physiology, including the physiology of the human cardiovascular, respiratory, digestive, renal, and endocrine systems. Emphasizes the cellular mechanisms involved in the functions of the various organ systems, the roles of the organ systems in homeostasis, and the control of the organ systems by neural and hormonal mechanisms. Lectures, discussions, and clinical correlations.

PHY 801, 802, 803, 434 - (2) (S)
Seminar in Physiology
Topics of current interest in physiology and related sciences are presented and discussed.

Note: The following advanced courses will be offered as required.

PHY 810 - (3) (E)
Macromolecular Structure Determination
MSD treats the theory of X-ray scattering and focuses on the application of X-ray diffraction to macromolecular crystallography. Related topics such as low angle scattering, electron diffraction, nuclear magnetic resonance spectroscopy, and determinants of protein structure are included to provide a basis for interpretation of the crystallographic results. Cross listed as BIOP 802.

PHY 813 - (3) (E)
Structure and Function of Biological Membranes
A special topics course for advanced graduates that is an in-depth assessment of the structure and function of biological membranes. Includes lectures as well as directed discussions of papers from the literature. Topics include membrane and membrane protein structure, lipid protein interactions, ion channels and their regulation, and active transport and ion driven molecular motors. Emphasizes biophysical approaches in these areas with the primary literature the main source of reading. Students present a final paper that is written in the format of a grant proposal as well as an oral presentation of the proposal.

PHY 852 - (3) (E)
Vascular Biology
Prerequisite: One course in mammalian physiology and one in cell biology.
A broad interdisciplinary course considering the basis for vascular function from a physiological and pathophysiological perspective. Topics include basic microcirculatory function, smooth muscle and endothelial cell function and development, capillary exchange, inflammatory processes, leukocyte endothelial cell interactions, and the pathophysiology of atherogenesis.

PHY 862 - (4) (Y)
Neurophysiology
Selected topics in neurophysiology, emphasizing synaptic organization of the brain: how neurons convert physical stimuli into the sensations they evoke and how movement is controlled through integrative neuronal action. Explores the mechanisms of learning and memory at the neuronal and molecular levels.

PHY 892, 893 - (1-3) (S)
Directed Readings in Physiology
Readings in particular fields of physiology under supervision of the instructor.

PHY 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
Taken before a thesis director is selected.

PHY 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

PHY 995 - (3-12) (S)
Research
Directed research on an approved problem in physiology.

PHY 996 - (3-12) (S)
Research
Directed research on an approved problem in physiology.

PHY 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

PHY 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation.
McIntire Department of Music
112 Old Cabell Hall
University of Virginia
P.O. Box 400176
Charlottesville, VA 22904-4176
(434) 924-3052 Fax: (434) 924-6033
www.virginia.edu/music

Prospective students should be aware that the deadline for application to the graduate program in Music is December 15.

Graduate Programs in Music
The department offers graduate programs leading to the Ph.D. in music, with concentration either in Composition or in Critical and Comparative Studies of Music.

The concentration in Composition will develop composers’ creative and intellectual potential through intensive work in acoustic and digital media; analytical and critical study of diverse musics; and active engagement in the development of new musical technologies. Performances of both acoustic and digital works will be an important part of the program, as will the resources of the Virginia Center for Computer Music.

The concentration in Critical and Comparative studies will prepare students for a wide range of careers based on the scholarly study of music; including college and university teaching. Through seminars, independent study and close work with faculty advisors, students learn to craft the intellectual approach appropriate to their research interests by drawing from the skills of musicology, ethnomusicology, criticism, theory and analysis, aesthetics, and performance studies.

Degree Requirements
The Ph.D. requires 54 credits of course work, up to 18 credits of dissertation research, and successful completion of a dissertation project. (Students who successfully complete two years (36 credits) of course work and the projects appropriate to their concentration will be granted an M.A. at the end of their second year). Students entering with an M.A. degree may petition the department’s graduate committee to transfer up to 24 graduate credits.

Students in both concentrations are required to pass both a written qualifying examination and an oral examination on their dissertation proposal before admission to candidacy. Completed dissertations will be defended in an oral examination open to the public.

All entering students will be required to take a non-credit introduction to music research as part of their orientation experience.

The Concentration in Composition
1. Course Requirements Composition students will register for private composition instruction for 6 semesters. Students are strongly encouraged to work with different faculty after year in order to draw upon varied faculty approaches. All Composition students will take at least one segment of the three semesters of MUSI 747 and will also work closely with faculty to design the most appropriate course of study. Normally, Composition students will take at least two courses in digital media (such as MUSI 735, 740, 743, 745). Composition students are also encouraged to take seminars offered by the Critical and Comparative Studies faculty, as well as courses outside of the department in other areas of interest, such as cognitive science, computer science, or philosophy. Because MUSI 711 will be a pre- or co-requisite for Critical and Comparative Studies seminars, Composition students are urged to take this course during their first semester.

Generally, no more than two courses at the 500 level may be counted toward the Ph.D.

2. Language Requirement Composition students are required to demonstrate mastery of at least one foreign language or computer language before admission to candidacy.

3. Year One Project In their first year of study, Composition students will create a significant work to be performed during the spring semester. Successful completion of this project will be required for continuation in the program. After the performance, the Composition faculty will meet to discuss the composition, and to advise on the nature of the student’s second year project and the areas that might be covered on the qualifying examination.

4. Year Two Projects In their second year of study, Composition students will write an article-length paper demonstrating analytical and critical abilities. Ordinarily this paper will be drafted by the end of the third semester of study, and submitted in revised form by March 15 of the fourth semester. Additionally, second year Composition students will create another work that will be performed in the spring semester.

At least one of the project compositions completed by the end of the second year should have an electronic component. By the end of the second year of study, students should choose the principal faculty advisor for their dissertation project, and the other members of their committee. This committee will administer and grade the qualifying exam, and approve the dissertation proposal.

5. Qualifying Examinations Composition students will normally take a qualifying examination during the fifth semester. Intended to demonstrate the student’s analytical and critical abilities, the examination will consist of written exercises and an oral exam. One exercise will focus on an area of the student’s interest, to be determined at the conclusion of the second year project, while the second will reflect the student’s broader familiarity with the field. The oral exam will include discussion of written work as well as current compositional projects.

6. Dissertation Project The dissertation project in Composition will consist of two parts: (1) creation of an extended composition for acoustic, electro-acoustic or electronic media; and (2) an article-length essay suitable for publication. In some cases a longer dissertation essay may be appropriate.

During the sixth semester, Composition students will develop a proposal that describes both the composition and the essay that together will constitute the dissertation project. Students will present the dissertation proposal to their committee for approval.

The completed dissertation will be defended in a public examination before a committee of at least four faculty, at least one of whom will be from another department.

The Concentration in Critical and Comparative Studies
1. Course Requirements Students of Critical and Comparative Studies in Music will ordinarily take 3 seminars each semester for three years. MUSI 811 should be taken in a student’s first semester, as pre- or co-requisite for 700- and 800-level seminars. Additionally, students of Critical and Comparative Studies may take up to 9 credits of course work outside the music department. The choice of such interdisciplinary study should be made in close consultation with faculty advisors.

Generally, no more than two courses at the 500 level may be counted toward the Ph.D.

2. Language Requirements By the end of the second year of study, students of Critical and Comparative Studies will have demonstrated mastery of one foreign language and proficiency in a second. (These levels of competency are described elsewhere in the Graduate Record.) No student will be admitted to candidacy until the language requirement is fulfilled.

3. Year One Project By the end of the first year of study, students of Critical and Comparative Studies will submit to the graduate committee an abstract of one seminar paper they have completed during that year. Working with faculty advice and comments, students will develop the seminar paper into a 20-minute conference paper to be presented at a mini-conference sponsored by the department in the first week of the following term.

4. Year Two Requirements By the end of the second year of study, students will have chosen the principal faculty advisor of their dissertation work, and the other members of their committee. Working in close consultation with these faculty advisors, students will have determined the general area of their dissertation project, and will have identified the areas on which their qualifying examination will focus. The faculty committee students assemble in their second year will administer and grade the qualifying exam, and the same committee will examine orally and approve the dissertation prospectus.
Course Descriptions

Note: Courses numbered 500–599 are for advanced undergraduate and graduate students; courses numbered 700 and above are for graduate students only.

MUSI 533 - (3) (IR) Modal Counterpoint
Prerequisite: Instructor permission.
Written and aural exercises based on analyses of the contrapuntal style of Palestrina and his contemporaries.

MUSI 534 - (3) (IR) Tonal Counterpoint
Prerequisite: Instructor permission.
Written and aural exercises based on analyses of the contrapuntal style of J.S. Bach and his successors.

MUSI 535 - (3) (O) Instrumentation
Prerequisite: Instructor permission.
Study of the characteristics of orchestral instruments.

MUSI 536 - (3) (O) Orchestration
Prerequisite: MUSI 535.
Composing and arranging music for orchestral instruments in various combinations.

MUSI 538 - (3) (IR) Canon and Fugue
Prerequisite: MUSI 431 and instructor permission.
Composition and analysis of canons and fugues, focusing on the works of J.S. Bach.

MUSI 541, 542 - (3) (Y) Conducting I, II
Prerequisite: MUSI 332 or equivalent and instructor permission.

Studies the theory and practice of conducting and rehearsal technique.

MUSI 551, 552, 553, 554, 555, 556, 557, 558 - (2) (S) Graduate Performance
Prerequisite: Graduate standing in music with instructor permission by audition.

MUSI 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570 - (1-2) (SI) Performance Ensembles
Prerequisite: Graduate standing in music with instructor permission by audition.

MUSI 581, 582 - (3) (Y) Composition
Prerequisite: MUSI 431 and instructor permission.

MUSI 593, 594 - (1-2) (SI) Independent Study
Prerequisite: Instructor permission.
Independent study dealing with a specific topic. Primary emphasis is not on research.

MUSI 700 - (3) (IR) Studies in Pre-Modern Music to 1500
Prerequisite: Instructor permission.

MUSI 701 - (3) (IR) Studies in Early Modern Music 1500-1750
Prerequisite: Instructor permission.

MUSI 702 - (3) (IR) Studies in Seventeenth- and Eighteenth-Century Music
Prerequisite: Instructor permission.

MUSI 703 - (3) (IR) Studies in Nineteenth-Century Music
Prerequisite: Instructor permission.

MUSI 704 - (3) (IR) Topics in Twentieth Century Music
Prerequisite: Instructor permission.

MUSI 705 - (3) (IR) Vocal Music
Prerequisite: Instructor permission.
Studies topics, announced in advance, and selected from opera, oratorio, choral music, or song.

MUSI 706 - (3) (IR) Instrumental Music
Prerequisite: Instructor permission.
Studies topics, announced in advance, selected from the orchestral, chamber music or solo repertories.

MUSI 707 - (3) (IR) Composers
Prerequisite: Instructor permission.
Study, announced in advance, of the life and works of a composer (or school of composers).

MUSI 708 - (3) (IR) American Music
Prerequisite: Instructor permission.

MUSI 709, 710 - (3) (IR) Cultural and Historical Studies of Music
Prerequisite: Instructor permission.
Selected topics, announced in advance, exploring the study of music within cultural and historical frameworks.

MUSI 711 - (3) (Y) Introduction to Research in Music
Prerequisite: Instructor permission.

MUSI 712 - (3) (SI) Studies in Jazz Literature
Prerequisite: Instructor permission.

MUSI 719, 720 - (3) (IR) Current Studies in Research and Criticism
Prerequisite: Instructor permission.

MUSI 723 - (3) (IR) Issues in Ethnomusicology
Prerequisite: Instructor permission.
Intended as a first intensive experience with ethnomusicology and performance studies, this seminar explores musical ethnography, field research, and a performance approach to both. Addresses issues involving race, class, gender, and identity politics in light of particular topics and area studies.

MUSI 724 - (3) (IR) Field Research and Ethnography of Performance
Prerequisite: Instructor permission.
Working with and critiquing ideas about ethnography and performativity, students explore epistemological, ethical, and aesthetic issues as they relate to field research, and push the envelope of “creative non-fiction” in the ethnographic realm through writing. A final essay as well as a final performance presentation are required.

MUSI 725, 726 - (3) (IR) Topics in Ethnomusicology
Prerequisite: Instructor permission.
Studies the field of ethnomusicology. Specific issues and cultural areas addressed depend on the interests of students and the instructor.

MUSI 732 - (3) (Y) Musical Analysis
Prerequisite: Instructor permission.
Studies various approaches to musical analysis; readings from the most important theoretical literature; and the practical exercises in analysis of music from all periods.

MUSI 740 - (3) (Y) Computer Sound Generation and Spatial Processing
Prerequisite: Instructor permission. The course is intended for graduate students in music.
Studies in sound processing, digital synthesis and multichannel audio using RTCMix running under Linux. Students learn techniques of computer music through advanced composition, analysis of representative works, and programming.

MUSI 743 - (3) (Y) Sound Studio
Prerequisite: Instructor permission.
Studies in computer music studio techniques, sound synthesis using a variety of software packages based on the Macintosh platform, and the creation of original music using new technologies.
MUSI 745 - (3) (SI)  
Computer Applications in Music  
Prerequisite: Instructor permission. Topics involving the composition, performance, and programming of interactive computer music systems.

MUSI 747 - (3) (Y)  
Materials of Contemporary Music  
Prerequisite: Instructor permission.  
The course is intended for graduate students in music. Topics in contemporary music that will focus on different areas in rotation. Each will involve focused readings, analysis of selected works, and the creation of original compositions that reflect the issues under discussion.

MUSI 771, 772 - (3) (SI)  
Instrumental Conducting I, II  
Prerequisite: Instructor permission.  
Advanced studies in the theory and practice of conducting, score analysis, and rehearsal techniques.

MUSI 774 - (3) (SI)  
Music in Performance  
Prerequisite: Instructor permission.  
Provides a venue for students to study how musical performances implicitly or explicitly enact and/or (re)negotiate their historical, cultural, and ideological circumstances. Students examine their premises about the very nature of music as constituted by a given cultural context and evaluate the socio-esthetic bases of their own musical judgments.

MUSI 775, 776 - (3) (S)  
Choral Conducting I, II  
Prerequisite: Instructor permission.  
Advanced studies in the technique and art of conducting, with weekly experience conducting repertoire with a small choral ensemble.

MUSI 781 - (3) (Y)  
Composition  
Prerequisite: Instructor permission.

MUSI 783, 784 - (3) (SI)  
Proseminar in Computer Music Composition  
Prerequisite: MUSI 539, MUSI 540 and instructor permission.

MUSI 805, 806 - (3) (SI)  
Advanced Studies in Music  
Prerequisite: Instructor permission.

MUSI 871, 872 - (3) (SI)  
Advanced Instrumental Conducting I, II  
Prerequisite: Instructor permission.  
This course will offer individual advanced training and coaching in instrumental conducting for experienced graduate conductors.

MUSI 881, 882 - (3) (SI)  
Advanced Composition  
Prerequisite: Instructor permission.

MUSI 883, 884 - (3) (SI)  
Advanced Computer Music Composition  
Prerequisite: MUSI 539, 540, and instructor permission.

MUSI 891, 892 - (3) (IR)  
Supervised Research  
Prerequisite: Instructor permission.  
Reading and/or other work in particular fields under supervision of an instructor. Normally taken by first-year graduate students.

MUSI 893, 894 - (1-3) (SI)  
Independent Study  
Prerequisite: Instructor permission. Independent study dealing with a specific topic. Requirements will place primary emphasis on independent research.

MUSI 896 - (3) (S)  
Thesis

MUSI 897 - (3-12) (S)  
Non-Topical Research, Preparation for Research  
For master’s research, taken before a thesis director has been selected.

MUSI 898 - (3-12) (S)  
Non-Topical Research  
For master’s thesis, taken under the supervision of a thesis director.

MUSI 901, 902 - (3) (IR)  
Directed Readings  
Prerequisite: Instructor permission.  
Intensive readings on particular topics, under the supervision of an instructor.

MUSI 991, 992 (3) (IR)  
Supervised Research  
Prerequisite: Instructor permission.  
Reading and/or other work in particular fields under supervision of an instructor. Normally taken by second year graduate students.

MUSI 993, 994 - (3) (IR)  
Independent Research  
Prerequisite: Instructor permission.  
Research carried out by graduate student in consultation with an instructor.

MUSI 997 - (3-12) (S)  
Non-Topical Research, Preparation for Doctoral Research  
Prerequisite: Instructor permission.  
Preliminary research directed towards a dissertation in consultation with an instructor.

MUSI 999 - (3-12) (S)  
Non-Topical Research  
Prerequisite: Instructor permission.  
For doctoral dissertation, taken under the supervision of a dissertation director.

Program in Neuroscience  
1352 Jordan Hall  
University of Virginia  
P.O. Box 801408  
Charlottesville, VA 22908-1408  
(434) 982-4285 Fax: (434) 243-6549  
www.healthsystem.virginia.edu/internet/neuroscience

Neuroscience has evolved as a vital and dynamic field involving the anatomy, biochemistry, pharmacology, and physiology of the brain and their relationship to behavior. This range of disciplines combined for the study of a singular and remarkably complex organ (the brain) dictates the need for unique interdisciplinary study. The Interdepartmental Neuroscience Program at the University of Virginia has been developed to provide such an opportunity. It coalesces over 50 faculty from more than 14 departments into a unified program for graduate study, leading to the Ph.D. degree in Neuroscience.

General Information  
Prerequisites While there are no rigid prerequisites for admission to the neuroscience program, the optimal background of entering students would include courses in biology, chemistry, physics, psychology, and mathematics. Each subdiscipline of neuroscience requires a different degree of preparation in each of these areas, and students with inadequate backgrounds in the basic biological, physical, and behavioral sciences are required to satisfy the deficiency after admission to the program.

Requirements The program is designed to encourage involvement in research at every stage. Thus, upon admission, students choose advisors based on their areas of interest. The students make their academic home in the advisors’ laboratory and engage in research apprenticeships there.

The first-year requirements are designed to provide students with fundamental information for more advanced training. Courses in the first year include a survey course in neurobiology, cell structure and function, and medical neuroscience. Students also work closely with neuroscience graduate program faculty through laboratory apprenticeships in the first year to begin formulation of a research program. During the second year, students take more specialized courses such as developmental neurobiology, neurophysiology, and behavioral and cognitive neuroscience. Completion of all course requirements usually occurs in the second year. It is also during this year that students begin to choose laboratories in which they concentrate research efforts, and begin to formulate a topic for a major area paper used for advancement to candidacy toward the Ph.D. Various laboratory rotations are encouraged during the first two years of training. In the third year, students are expected to pass the major area paper and continue work on projects that may be a portion of their Ph.D. thesis. Completion of requirements for the Ph.D. are contingent on successful presentation and defense of a written proposal, an oral presentation of dissertation work before the neuroscience graduate program, a written thesis, and successful defense of the thesis.

The students' program of courses is developed through close consultation with their faculty advisor. Attention is placed on flexibility in the program. Each student's program is tailored to meet individual needs and interests.

This program is administered by the Neuroscience Graduate Committee, which is chaired by Doug Bayliss in the Department of Pharmacology.

There is no foreign language requirement. The Neuroscience website may be consulted for further information.
Course Descriptions

BION 505 - (3) (Y)  Developmental Neurobiology
Research Ethics
Formal training in scientific integrity and ethical principles in research.
BIMS 710 - (1) (Y)  Cell Structure and Function
Introduces cellular, molecular, and developmental neuroscience. Includes the cellular and molecular biology of neurons and glia, intercellular signaling in the nervous system, and neuronal development and plasticity. Lectures and directed readings of primary literature.
NESC 703 - (5) (Y)  Neurobiology
An analysis of current research on the interrelationships of structure and their functions in bacterial and eukaryotic cells. Special emphasis is placed on the functions of cellular membranes as related to neuromuscular activities and on cellular interactions as related to cancer.
NESC 706 - (5) (Y)  Fundamentals of Neuroscience
Provides a comprehensive and integrated understanding of the structure and function of the central nervous system. Stresses the structural and functional interrelationships of the various regions of the brain and spinal cord, and the cellular, molecular, and developmental biology of the nervous system. Laboratory sessions include brain dissections and examination of microscopic material.
NESC 707 - (2) (Y)  Tutorial in Fundamentals of Neuroscience
Corequisite: NESC 706. Examines fundamental issues raised in NESC 706 and reviews literature on a wide range of current topics, such as the molecular basis of neurological disease.
NESC 720 - (3) (Y)  Behavioral and Cognitive Neuroscience
Covers regulatory systems that operate on behavior, including behavioral neuroscience topics (circadian rhythms, drug addiction, neuroethology, social behavior) and cognitive neuroscience topics (physiology of learning and memory, perception, cognition, aging).
NESC 801, 802 - (2) (S)  Seminar in Neuroscience
Prerequisite: Permission of program director. Topics of current interest in neuroscience are presented and discussed by both the program faculty and visiting neuroscientists from other institutions.
NESC 808 - (1) (Y)  Neuroscience Graduate Student Seminar Series
Students give forty-five minute presentations to their peers each week. Provides a chance for practice and improvement in giving lectures and an opportunity to receive advice from fellow trainees and attending faculty.

NESC 815, 816, 817, 818 - (2) (S)  Introduction to Research
Prerequisite: Permission of program director. Laboratory experience acquaints the student with applied theory and current techniques in addressing research problems in neuroscience.
NESC 850, 851 - (1-3) (Y)  Directed Readings in Neuroscience
Prerequisite: NESC 706, 707, and 708 or permission of program director. Selected readings in neuroscience under the direction of a program faculty member.
NESC 997 - (3-12) (S)  Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.
NESC 999 - (3-12) (S)  Non-Topical Research
For doctoral research, under the supervision of a dissertation director.

PHYS 862 - (2) (Y)  Neurophysiology
Selected topics in neurophysiology, emphasizing synaptic organization of the brain: how neurons convert physical stimuli into sensations they evoke and how movement is controlled through integrative neuronal action. Explores the mechanisms of learning and memory at the neuronal and molecular levels.

STAT 500 - (3) (Y)  Introduction to Applied Statistics
Introduces estimation and hypothesis testing in applied statistics, especially the medical sciences. Measurement issues, measure of central tendency and dispersion, probability, discrete probability, distributions (binomial and Poisson), continuous probability distributions (normal, t, chi-square, and F), and one- and two-sample inference, power and sample size calculations, introduction to non-parametric methods, one-way ANOVA and multiple comparisons. Students must enroll in STAT 598 for 1 credit (Applied Statistics Laboratory).

Department of Pharmacology
UVa Health System
Jordan Hall
P.O. Box 800735
Charlottesville, VA 22908-0735
(434) 924-1919 Fax: (434) 982-3878
www.healthsystem.virginia.edu/internet/pharmacology

Degree Requirements
The curriculum for each student will be developed with the aid of the graduate committee. During the first year, trainees rotate through various laboratories in the department and participate in Journal Club. In addition, the following required courses must be taken: BIMS 503 Macromolecular Structure and Function (Biochemistry), BIMS 812 Cell Structure and Function, BIMS 832 Graduate Physiology, and one elective. In the second year, students enroll in BIMS 811 Gene Structure and Function, PHAR 901 Human Pharmacology, PHAR 902 Molecular Characterization of Drug Targets, and one elective. The program is flexible and with the exception of the required courses above, other course work will be tailored to the needs and desires of the individual student. Advanced graduate courses are available in most areas of pharmacology, as listed above, as well as in allied sciences such as cell biology, biochemistry, anatomy, physiology, microbiology, and medicinal chemistry. Most formal courses, with the exception of seminar and Journal Club, will be completed within the first two years.

Each student is required to present and defend a detailed research proposal before a faculty committee. This proposition defense is to be completed by July 1 at the end of the fourth semester.

Research for the dissertation is regarded as the major training of the candidate. An independent research project must be completed and published under the close supervision of an advisor and a thesis committee. The research is started as early as possible in the candidate’s program, usually in the second year.

The final examination for the degree of Doctor of Philosophy is devoted entirely to defense of the dissertation by the candidate.

Course Descriptions

PHAR 701, 702 - (1) (S)  Seminar in Pharmacology
Recent developments in pharmacology are presented by outside speakers at weekly intervals to faculty, staff and students. Students participate by meeting with the speaker for one to two hours during the day of the seminar. One hour weekly during both the first and second semesters.

PHAR 730 - (7) (Y)  General Pharmacology
Prerequisite: BIOC 503 and PHY 701. A lecture course covering the major fields of pharmacology for medical students. The principal current drugs are discussed in detail as prototypes. Emphasizes mechanism of action, drug distribution and biotransformation in the body, testing new drugs in experimental animals and in the human, and adverse reactions to drugs and toxicology.

PHAR 811, 812 - (1) (S)  Pharmacology Literature
A continuing seminar based on papers in the current literature. Required participation by departmental staff, fellows, and graduate students. One hour per week.

PHAR 813, 814 - (1) (IR)  Tutorial in Pharmacology
Students meet for one hour per week with assigned tutors and discuss, in depth, problems related to pharmacology.
to undertake the work necessary for the development of such skills. Teaching and non-teaching assistantships serve this purpose. Six semesters of such work are required as part of the Ph.D. program, and four semesters as part of the M.A. program.

Master of Arts Candidates must pass 24 credits of courses at the 500-, 700-, or 800-levels and must submit and orally defend a thesis on a topic approved by the staff. Thesis proposals should be submitted at least by the semester preceding that in which the degree is to be awarded.

Doctor of Philosophy Candidates must:

1. pass 42 credits of courses at the 500-, 700-, or 800-levels. Students who enter the Ph.D. program with an M.A. in Philosophy from another institution may count up to 24 credits of graduate courses taken at the other institution toward this requirement;

2. qualify in four areas: metaphysics and epistemology, ethics, history of philosophy, and logic. For each of the first three areas, candidates qualify in that area by achieving an average grade of at least B+ in three courses in that area. Candidates qualify in logic either by examination or by satisfactory course work in two courses approved by the department, one in formal logic, the other in philosophical logic;

3. propose and have approved, at least a year before the degree is to be awarded, a topic and plan of work for the dissertation;

4. defend the dissertation in an oral examination.

J.D.-M.A. Program This department, in cooperation with the School of Law, offers a combined program leading to the degrees of J.D. and M.A. in Philosophy. In order to enter the program a student is required to secure admission separately to the School of Law and to the Graduate School of Arts and Sciences through normal admissions procedures; and to subsequently secure admission to the joint program by application to the program committee.

The program normally takes 3-4 years to complete, and ordinarily consists of the complete first-year program at the School of Law, followed by three years of courses from the curricula of the two schools and, where appropriate, from other graduate offerings at the University. The student must meet all the requirements set by the respective departments to be awarded each degree. This involves, in the School of Law, a minimum of 86 credits, as well as completion of the school’s curricula; and, in the Department of Philosophy, 24 credits and completion of a thesis written under the supervision of a faculty advisor. With the approval of the members of the program committee, a student may count up to 12 credits earned at the graduate level in the Department of Philosophy or other graduate offerings in the University, toward the 86 credits required for the J.D. degree; and up to six credits earned in the School of Law toward the 24 credits required for the M.A. degree.

Further regulations concerning change of status, financial aid, tuition and fees, extracurricular activities, and grading standards may be obtained on application to the Department of Philosophy.

Course Descriptions

PHIL 504 - (3) (Y)

Bioethics Seminar

Prerequisite: Fourth-year bioethics minor or interdisciplinary bioethics major. Topics vary annually and include “Methods of Practical Ethics” and “Reproductive Ethics.”

PHIL 505, 506 - (3) (IR)

Seminar on a Philosophical Topic

PHIL 510 - (3) (IR)

The Historiography of Philosophy

Examines the issues arising from the study of the history of philosophy. Authors include Aristotle, Hegel, Russell, Collingwood, and Rorty.

PHIL 513 - (3) (O)

Medieval Philosophy Seminar on St. Augustine, St. Bonaventure, St. Thomas Aquinas, and Duns Scotus. Topics include the existence of God, accounts of necessity and possibility, the justification and acquisition of concepts, and the interaction between Platonism and Aristotelianism in Christian thought.

PHIL 542 - (3) (E)

Symbolic Logic

Prerequisite: PHIL 242 or its equivalent. Examines various results in metalogic, including completeness, compactness, and undecidability. Effective computability, theories of truth, and identity may also be covered.

PHIL 543 - (3) (SI)

Advanced Logic

Prerequisite: PHIL 542 or instructor permission.

Continues the study of the metatheory of first order logic, introduced in PHIL 542. Includes the significance of the Lowenheim-Skolem theorem and of Godel’s incompleteness theorems for first order arithmetic; the limitations of higher order logic; and topics from specialized areas in logic: set theory, recursion theory, and model theory.

PHIL 546 - (3) (E)

Philosophy of Science

Logical analysis of the structure of theories, probability, causality, and testing of theories.

PHIL 547 - (3) (IR)

Philosophy of Mathematics

Prerequisite: Some familiarity with quantifier logic or instructor permission. Comparison of various schools in the philosophy of mathematics (including logicism, formalism, and conceptualism) and their answers to such questions as “Do numbers exist?” and “How is mathematical knowledge possible?”

PHIL 548 - (3) (IR)

Philosophy of the Social Sciences

Prerequisite: Six credits of philosophy or instructor permission.
Problems studied include explanation in the social sciences; the place of theory; objectivity; the relation between social science and natural science, philosophy, and literature.

PHIL 559 - (3) (IR) Research Ethics
Prerequisite: Graduate standing. Studies the history of research scandals (e.g., Nuremberg, Tuskegee) resulting in federal regulation of human subjects research; examines and critically assesses the randomized clinical trial (including informed consent, risk/benefit ratio, randomization, placebos); and considers the ethics of research with special populations, such as the cognitively impaired, prisoners, children, embryos and fetuses, and animals.

PHIL 701, 702 - (3) (Y) Tutorial Instruction
PHIL 703, 704 - (3) (SI) General Philosophical Topics
PHIL 705, 706 - (3) (Y) Seminar on a Philosophical Topic
PHIL 711 - (3) (O) Plato
PHIL 712 - (3) (E) Aristotle
PHIL 715 - (3) (O) Continental Rationalism
PHIL 716 - (3) (E) British Empiricism
PHIL 725 - (3) (SI) Logical Positivism
PHIL 731 - (3) (O) Epistemology
PHIL 732 - (3) (E) Topics in Epistemology
PHIL 733 - (3) (O) Metaphysics
PHIL 734 - (3) (E) Philosophy of Mind
PHIL 743 - (3) (SI) Inductive Logic
PHIL 744 - (3) (E) Philosophical Logic
PHIL 750 - (3) (SI) Topics in the Philosophy of Language
PHIL 751 - (3) (O) Ethics
PHIL 752 - (3) (E) Contemporary Ethics
PHIL 757 - (3) (E) Political Philosophy
PHIL 761 - (3) (SI) Aesthetics
PHIL 763 - (3) (SI) Legal Philosophy
PHIL 764 - (3) (SI) Philosophy of History

PHIL 795 - (3) (S) Supervised Research
PHIL 805, 806 - (3) (Y) Seminar on a Philosophical Topic
PHIL 811 - (3) (E) Topics in Ancient Philosophy
PHIL 813, 814 - (3) (O) Medieval Philosophy: Augustine and Thomas Aquinas
PHIL 816 - (3) (SI) Hume’s Ethics
PHIL 817 - (3) (O) Kant: The First Critique
PHIL 818 - (3) (SI) Kant’s Ethics
PHIL 819 - (3) (SI) Nineteenth-Century German Philosophy
PHIL 823 - (3) (E) Development of Analytical Philosophy
PHIL 827 - (3) (O) The Philosophy of Wittgenstein
PHIL 829, 830 - (3) (SI) Topics in Contemporary Philosophy
PHIL 831 - (3) (E) Metaphysics
PHIL 832 - (3) (SI) Contemporary Epistemology
PHIL 833, 834 - (3) (E) Philosophy of Mind
PHIL 835 - (3) (O) Seminar on Free Will
PHIL 841, 842 - (3) (SI) Advanced Logic and Foundations of Mathematics
PHIL 846 - (3) (SI) Philosophy of Science
PHIL 851 - (3) (SI) Problems in Ethics and Metaethics
PHIL 857 - (3) (SI) Problems in Political Philosophy

Degree Requirements
The Master’s Program
Three master’s-level degrees are offered in the Physics Department. Candidates for the M.S. degree must pass thirty credits of courses approved by the graduate adviser, present a thesis, and defend it in an oral examination. Offered primarily for secondary or community college teachers, the M.A. degree requirements depend on the candidate’s background and are developed with the departmental graduate program committee. The M.A.P.E. (Master of Arts in Physics Education) degree is designed to provide middle school physical science and high school physics teachers with a strong background in physics. Courses numbered in the 600s are taken to satisfy the requirements for this degree. Typically students take two courses in the summer in residence at UVA and one distance learning course in the academic year totaling ten credits each year to complete the required thirty credits in two and a half years.

The Ph.D. Program
Unless credit for advanced standing is given by the departmental advisor, Ph.D. candidates must pass twelve departmentally required courses (seven specified “core courses” and five electives) in addition to six elective courses passed with a letter grade (not S or U) and six more courses, including non-topical research.

Qualifying Examination
Candidates for the Ph.D. degree must pass a qualifying examination in the subjects of classical mechanics, electricity and magnetism, quantum mechanics, and statistical mechanics. The material for this examination is covered in the seven core courses, which should be completed before the start of the fourth semester.

Research and Thesis Requirements
Ph.D. candidates must present a dissertation on their research, satisfactory to their research advisor, and defend it in an oral examination.

The Engineering Physics Program
The Department of Physics also offers an engineering physics degree program jointly...
administered with the School of Graduate Engineering and Applied Science. The engineering physics program offers the flexibility of pursuing an advanced degree in interdisciplinary fields defined by the student. Students seeking the Ph.D. degree in this program must satisfy the engineering physics degree course requirements: two each in physics and engineering and one in mathematics. In addition, students must also satisfy any other general requirements listed in the School of Graduate Engineering chapter of this Record. Students must choose a research advisor and declare a concentration in the Engineering School within the fall semester of their first year. The qualifying examination for a Ph.D. consists of an oral examination following a written examination of three components; students must take at least one component in physics and one in engineering.

Course Descriptions

Note: The courses listed below are given as the needs of students require.

**PHYS 519 - (3) (Y)**
Electronics
*Prerequisite:* Instructor permission.
Practical electronics for scientists, from resistors to microprocessors.

**PHYS 521 - (3) (Y)**
Theoretical Mechanics I
*Prerequisite:* PHYS 321 and MATH 522, or instructor permission.
The statics and dynamics of particles and rigid bodies. Discusses the methods of generalized coordinates, the Lagrangian, Hamilton-Jacobi equations, action-angle variables, and the relation to quantum theory.

**PHYS 524 - (3) (Y)**
Introduction to the Theory of General Relativity
*Prerequisite:* Advanced calculus through partial differentiation and multiple integration; vector analysis in three dimensions. Reviews special relativity and coordinate transformations. Includes the principle of equivalence; effects of gravitation on other systems and fields; general tensor analysis in curved spaces and gravitational field equations; Mach’s principle, tests of gravitational theories: perihelion precession, red shift, bending of light, gyroscopic precession, radar echo delay; gravitational radiation; relativistic stellar structure and cosmography; and a short survey of cosmological models.

**PHYS 531 - (3) (Y)**
Optics
*Prerequisite:* PHYS 232, 241E, 251, or an equivalent college-level electromagnetism course; knowledge of vector calculus and previous exposure to Maxwell’s equations.
Includes reflection and refraction at interfaces, geometrical optics, interference phenomena, diffraction, Gaussian optics, and polarization.

**PHYS 532 - (3) (Y)**
Fundamentals of Photonics
*Prerequisite:* PHYS 531 or instructor permission.
This course is designed to provide an understanding of the physics that underlies technologies such as lasers, optical time/frequency standards, laser gyroscopes, and optical telecommunications. Covers the basic physics of lasers and laser beams, nonlinear optics, optical fibers, modulators and optical signal processing, detectors and measurements systems, and optical networks.

**PHYS 547 - (3) (IR)**
Introduction to Molecular Biophysics
*Prerequisite:* PHYS 331 or CHEM 361, PHYS 355 or CHEM 362, MATH 521, or instructor permission.
Introduction to the physics of molecular structures and processes in living systems. Includes molecular structure analysis by X-ray (and neutron) diffraction; electronic configuration of atoms, groups, and small molecules of critical importance in biology; physical methods of macromolecular structure determination, in solution and in the solid state; thermodynamic and electronic factors underlying group interactions, proton dissociation, and charge distribution in macromolecules; solvent-macromolecule interactions; action spectroscopy; and rate processes in series and parallel.

**PHYS 551, 552 - (3) (IR)**
Special Topics in Classical and Modern Physics
*Prerequisite:* PHYS 342 or instructor permission.
Lectures on topics of current interest in physics research and pedagogy. May be repeated for credit.

**PHYS 553 - (3) (Y)**
Computational Physics I
*Prerequisite:* PHYS 254; pre- or corequisite: PHYS 321 and PHYS 355, or instructor permission.
A review of computational methods for differentiation, integration, interpolation, finding zeros, extrema, etc., proceeding to a concentration on numerical solutions of differential equations, basic spectral analysis, numerical methods for matrices and Monte Carlo simulation applied to problems in classical and modern physics.

**PHYS 554 - (3) (Y)**
Computational Physics II
*Prerequisite:* PHYS 553, or instructor permission.
Advanced topics in computational physics including numerical methods for partial differential equations, Monte Carlo modeling, advanced methods for linear systems, and special topics in computational physics.

**PHYS 562 - (3) (Y)**
Introduction to Solid State Physics
Includes crystal structures, lattice vibrations, and electronic properties of insulators, metals, and semiconductors; superconductivity.

**PHYS 572 - (3) (Y)**
Introduction to Nuclear and Particle Physics
Studies subatomic structure, basic constituents and their mutual interactions.

**PHYS 582 - (3) (Y)**
Introduction to Nanophysics
An introduction to rapidly-evolving ideas in nanophysics. Covers the principles involved in the fabrication of nanosystems and in the measurement of phenomena on the nanoscale. Concepts necessary to appreciate applications in such areas as non-electronics, nano-magnetism, nano-mechanics and nano-optics, are discussed.

**PHYS 593 - (3) (Y)**
Independent Study
Independent study supervised by a faculty member, culminating in a written report, essay, or examination. May be repeated for credit.

**PHYS 605, 606 - (3) (SI)**
How Things Work I, II
*Prerequisite:* Undergraduate degree or instructor permission.
These courses consider objects from our daily environment and

**PHYS 601, 602 - (3) (YI)**
Concepts of Physics for Elementary School Teachers I, II
*Prerequisite:* Undergraduate degree or instructor permission. Primarily for teachers with little or no background in physics; not suitable for physics majors or any graduate degrees in physics (including the M.A.P.E.).
601 is a course in classical physics including mechanics, heat, electricity, magnetism, and waves. 602 is a course in modern physics including waves, optics, relativity, atomic structure, and nuclear physics. These may be distance-learning courses for in-service teachers. The two courses may be taken in any order.

**PHYS 609 - (3) (SI)**
Galileo and Einstein
*Prerequisite:* Undergraduate degree or instructor permission.
This course examines how new understanding of the natural world developed from the time of Galileo to Einstein taking the two famous scientists as case studies. This may be a distance learning course intended for in-service science teachers with lectures, homework and exams conducted via the Internet.

**PHYS 611, 612 - (3) (IR)**
Physical Science for Teachers
*Prerequisite:* Undergraduate degree and presently (or intending to be) a K-8 teacher. Laboratory-based course providing elementary and middle school teachers hands-on experience in the principles and applications.
of physical science. Not suitable for physics majors; no previous college physics courses are assumed.

**PHYS 613 - (1-3) (SI)**

*Topics in Physical Science*

*Prerequisite: Undergraduate degree or instructor permission.*

Small classes studying special topics in physical science using cooperative teaching in a laboratory setting. Hands-on experiments and lecture demonstrations allow special problems to be posed and solved. May be taken more than once.

**PHYS 620 - (1) (SI)**

*Topical Physical Science*

*Prerequisite: Undergraduate degree or instructor permission.*

A series of one-credit science courses of interest to K-12 teachers, as well as the general public. These courses are offered anywhere in the state as needed through School of Continuing and Professional Studies regional centers. The courses are designed to meet Virginia’s SOLs and consist of lectures, demonstrations, and many hands-on science activities. Current course topics include Sound, Light & Optics, Aeronautics and Space, Electricity, Meteorology, Magnetism, Heat & Energy, Matter, and Force & Motion. May be taken more than once.

**PHYS 631, 632, 633 - (4) (SI)**

*Classical and Modern Physics I, II, III*

*Prerequisite: Undergraduate degree and instructor permission.*

A comprehensive study of physics using some calculus and emphasizing concepts, problem solving, and pedagogy. This course series is intended for in-service science teachers, particularly middle school physical science and high school physics teachers. These courses can be used for crossover teachers who wish to obtain endorsement or certification to teach high school physics. They are required courses for the M.A.P.E. degree. The courses are typically taught for 4 weeks in the summer with a daily two-hour lecture and two-hour problem session. Problem sets continue for three months into the next semester.

I. Motion, kinematics, Newton’s laws, energy and momentum conservation, gravitation, harmonic motion, waves, sound, heat, and fluids.

II. Coulomb’s law, Gauss’s law, electrostatics, electric fields, capacitance, inductance, circuits, magnetism, and electromagnetic waves.

III. Geometric and physical optics, relativity, and modern physics.

**PHYS 635, 636, 637 - (3) (SI)**

*Curriculum Enhancement I, II, III*

*Prerequisite: Undergraduate degree and instructor permission.*

A laboratory sequence normally taken concurrently with PHYS 631, 632, 633, respectively. It includes experiments with sensors that are integrated with graphing calculators and computers and other experiments using low cost apparatus. The courses are typically held in the summer for four weeks and are extended into the next semester creating an activity plan. The laboratories utilize best teaching practices and hands-on experimentation in cooperative learning groups.

**PHYS 640 - (3-6) (SI)**

*Independent Study*

*Prerequisite: Undergraduate degree and instructor permission.*

A program of independent study for in-service science teachers carried out under the supervision of a faculty member culminating in a written report. A typical project may be the creation and development of several physics demonstrations for the classroom or a unit activity. The student may carry out some of this work at home, school, or a site other than the University.

**PHYS 641 - (3) (Y)**

*Physics Teaching Pedagogy*

*Prerequisite: PHYS 631, 632, 633, and 636, or instructor permission. Not suitable for physics majors.*

A course in the pedagogy of teaching secondary school physics. This may be a distance-learning course intended for in-service teachers desiring to teach secondary school physics.

**Advanced Graduate Courses**

Courses primarily for students seeking M.A., M.S., or Ph.D. degrees in physics.

**PHYS 719 - (3) (Y)**

*Advanced Experimental Physics*

Selected experiments designed to introduce students to concepts and techniques from a variety of fields of contemporary physics.

**PHYS 725 - (3) (Y)**

*Mathematical Methods of Physics I*

*Prerequisite: MATH 521 and 522 or instructor permission.*

Studies the principles and techniques of physics. Includes topics such as sets, topologies, vector spaces, integral equations and operators, Green’s functions.

**PHYS 742 - (3) (Y)**

*Electricity and Magnetism I*

*Prerequisite: PHYS 725 or instructor permission.*

A consistent mathematical account of the phenomena of electricity and magnetism; electrostatics and magnetostatics; macroscopic media; Maxwell theory; and wave propagation.

**PHYS 743 - (3) (Y)**

*Electricity and Magnetism II*

*Prerequisite: PHYS 742 or instructor permission.*

Development of the theory of special relativity, relativistic electrodynamics, radiation from moving charges, classical electron theory, and Lagrangian and Hamiltonian formulations of electrodynamics.

**PHYS 751 - (3) (Y)**

*Quantum Theory I*

*Prerequisite: Twelve credits of 300-level physics courses and MATH 521, 522, or instructor permission.*

Introduces the physical basis of quantum mechanics, the Schroedinger equation and the quantum mechanics of one-particle systems, and stationary state problems.

**PHYS 752 - (3) (Y)**

*Quantum Theory II*

*Prerequisite: PHYS 751 or instructor permission.*

Includes angular momentum theory, techniques of time-dependent perturbation theory, emission and absorption of radiation, systems of identical particles, second quantization, and Hartree-Fock equations.

**PHYS 795, 796 - (3) (Y)**

*Research*

Research leading to a master’s thesis.

**PHYS 797 - (3-12) (Y)**

*Research*

Continuation of PHYS 796.

Note: Admission to 800- and 900-level PHYS courses requires the instructor’s permission.

**PHYS 822 - (3) (E)**

*Lasers and Nonlinear Optics*

*Prerequisite: PHYS 531 and exposure to quantum mechanics.*

Studies nonlinear optical phenomena; the laser, sum, and difference frequency generation, optical parametric oscillation, and modulation techniques.

**PHYS 826 - (3) (IR)**

*Ultrafast Laser Spectroscopy*

*Prerequisite: There are no explicit graduate course pre-requisites, but familiarity with undergraduate level quantum mechanics, electricity and magnetism, optics, and differential calculus is expected.*

The course is designed to provide students in physics, chemistry, and engineering an overview of methods in which laser pulses with extremely short duration are used to explore atoms, molecules, and surfaces for basic and applied research applications. Students are also provided with formal descriptions of how laser pulses with extremely short duration are produced, manipulated, and characterized.

**PHYS 831 - (3) (Y)**

*Statistical Mechanics*

*Prerequisite: PHYS 751.*

Discusses thermodynamics and kinetic theory, and the development of the microcanonical, canonical, and grand canonical ensembles. Includes Bose-Einstein and Fermi-Dirac distributions, techniques for handling interacting many-particle systems, and extensive applications to physical problems.

**PHYS 832 - (3) (IR)**

*Statistical Mechanics II*

*Prerequisite: PHYS 831.*

Further topics in statistical mechanics.

**PHYS 842 - (3) (O)**

*Atomic Physics*

*Prerequisite: PHYS 752 or instructor permission.*

Studies the principles and techniques of atomic physics with application to selected topics, including laser and microwave spectroscopy, photoionization, autoionization, effects of external fields, and laser cooling.
PHYS 853 - (3) (Y)
Introduction to Field Theory
Prerequisite: PHYS 752.
Introduces the quantization of field theories, including those based on the Dirac and KleinGordon equations. Derives perturbation theory in terms of Feynman diagrams, and applies it to simple field theories with interactions. Introduces the concept of renormalization.

PHYS 854 - (3) (Y)
Modern Field Theory
Prerequisite: PHYS 853.
Applies field theory techniques to quantum electrodynamics and to the renormalization-group description of phase transitions. Introduces the path integral description of field theory.

PHYS 861 - (3) (Y)
Solid State Physics I
Prerequisite: PHYS 752 or instructor permission.
The description and basic theory of the electronic properties of solids including band structure, electrical conduction, optical properties, magnetism and superconductivity.

PHYS 862 - (3) (IR)
Solid State Physics II
A discussion of various topics and problems relating to the physical properties of crystalline solids.

PHYS 871 - (3) (E)
Nuclear Physics
Discusses nuclear theory and experiment. Description and interpretation of nuclear reactions including fission, and the structure of nuclei.

PHYS 872 - (3) (IR)
Nuclear Physics II
A continuation of the topics of PHYS 871.

PHYS 875 - (3) (IR)
Elementary Particle Physics I
Discusses the various topics and problems relative to the physical properties and interactions of elementary particles.

PHYS 876 - (3) (IR)
Elementary Particle Physics II
Extension of PHYS 875. Studies topics in modern elementary particle physics, including unified gauge theory of electroweak interactions and introduction to QCD and lattice gauge theory.

PHYS 881, 882 - (3) (IR)
Selected Topics in Modern Physics

PHYS 888 - (3) (E)
Quantum Optics and Quantum Information
Prerequisite: PHYS 751 or instructor permission.
Studies the quantum theory of light and other boson fields with a special emphasis on the nonclassical physics exemplified by squeezed and entangled quantum states. Applications to quantum communication, quantum computing, and ultraprecise measurements are discussed.

PHYS 897 - (3-12) (Y)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

PHYS 898 - (3-12) (Y)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

PHYS 901, 902 - (3) (Y)
General Physics Research Seminar

PHYS 925, 926 - (3) (IR)
Research Seminar in Theoretical Physics

PHYS 951, 952 - (3) (Y)
Atomic and Molecular Seminar

PHYS 961, 962 - (3) (Y)
Research Seminar in Solid State Physics

PHYS 971, 972 - (3) (Y)
Research Seminar in Nuclear Physics

PHYS 981, 982 - (3) (Y)
Research Seminar in Particle Physics

PHYS 997 - (3-12) (Y)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

PHYS 999 - (3-12) (Y)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Physics Colloquium
The faculty and graduate students meet weekly for the presentation by a visiting speaker of recent work in the physical sciences.

Woodrow Wilson Department of Politics
292 Cabell Hall
University of Virginia
P.O. Box 400787
Charlottesville, VA 22904-4787
(434) 924-3192 Fax: (434) 924-3359
www.virginia.edu/politics

Degree Requirements
Graduate Program The department offers graduate programs leading to M.A., and Ph.D. degrees in Government and in Foreign Affairs. Each of the programs, while emphasizing a specialized study pattern, is based upon a curriculum composed of the following four major fields:
I. American Politics
II. Comparative Politics
III. International Relations
IV. Political Theory

M.A. in Government The candidate is required to pass 24 credits of courses at the 500 level and above, one of which must be a designated research methods course. A thesis is required as well as demonstration of competence in either a foreign language or statistics and quantitative methods.

M.A.-J.D. in Government and Law The Department of Politics, in cooperation with the School of Law, offers a combined program leading to the degrees of J.D. and M.A.

M.A.-M.B.A. in Government and Business The Department of Politics in cooperation with the Darden Graduate School of Business Administration, offers a combined program leading to the degrees of M.B.A. and M.A.

Doctoral Programs Before admission to candidacy for the Ph.D. degree, the student must have received the M.A. degree (either in the department or at another university); completed 54 credits of graduate courses at the 500 level and above (24 Masters credits and 30 Doctoral credits), and 18 credits of non-topical research, including one designated departmental research methods course; and demonstrated either a reading knowledge of one language and competence in statistics and quantitative methods or a reading knowledge of two languages; passed two comprehensive examination; and secured approval of a dissertation prospectus. Comprehensive exams are offered in the four fields of the Department. At the time of applying for each exam, students shall designate whether the field will represent the major or minor field of study.

Language Requirements Competence in a foreign language is demonstrated by passing a test administered by the appropriate language department at this University (achieving a grade of B in a language course at the 202 level, taken at this University after admission to the graduate program is treated as equivalent to passing the test), or by presenting viva voce evidence to a person acknowledged by the department as capable of evaluating competence in the language.

Competence in statistics and quantitative methods may be demonstrated (a) by successfully completing two courses in the department in statistics and quantitative research; or (b) by a satisfactory performance on a test administered by the department.

Center for Public Service is described under Special Programs and Centers at the beginning of this chapter.

White Burkett Miller Center of Public Affairs is described under Special Programs and Centers at the beginning of this chapter.

Area Studies The department participates in programs sponsored by interdepartmental committees on Asian, Latin American, and Russian and East European area studies.
Course Descriptions
Courses offered by the department are divided into the following fields: I. American politics, II. comparative politics, III. international relations, IV. political theory. Those listed in this catalog are all offered for graduate credit. Undergraduates may register for courses at the 500 level if they have completed 12 credits of work in the department, or with the permission of the instructor. Courses at the 700 or 800 level are exclusively for graduates.

Graduate students who lack a substantial undergraduate background in political science should consult the instructor before registering for a 500-level course. A corresponding 500-level course (or the equivalent) is ordinarily prerequisite for an 800-level course.

Departmental Seminars
PLAD 709 - (3) (Y)
Research Methods and Design in Political Science
Studies the theoretical formulation of questions for political science research and examination of the design and execution of empirical research. Includes consideration of developing hypotheses for research, strategies for data collection (survey research, observational methods, content analysis), managing research projects, and ethical considerations related to the conduct of research.

PLAD 710 - (3) (Y)
Political Research with Quantitative Methods
Studies descriptive and inferential statistics in examining research questions in political science and public administration, including consideration of probability, hypothesis testing, correlation and regression analysis, statistical significance, and use of the SPSS computer package for quantitative analysis.

PLAD 712 - (3) (Y)
Qualitative Methods
Examines strategies for establishing correlation and causation when a small number of cases precludes use of statistical methods. Procedures for employing case studies to develop and test theories. Surveys the major procedures for analyzing small numbers of cases and explores how different research designs can be used to produce valid conclusions.

PLAD 831 - (3) (IR)
Advanced Quantitative Applications in Political Science
Prerequisite: PLAD 709, 710, or equivalents. Considers the use of selected techniques of behavioral research in the study of government and foreign affairs. Emphasizes the assumptions, procedures, and applications of the techniques rather than substantive findings.

PLAD 832 - (3) (IR)
Advanced Topics in Multivariate Analysis
Prerequisite: PLAD 709, 710, or equivalents. A survey and application of multivariate modeling techniques.

PLAD 890 - (3) (Y)
Departmental Pro-Seminar
For advanced graduate students who have completed core courses in the relevant departmental subfields. Allows students to read, critique, and discuss with authors a variety of works-in-progress presented by visiting scholars, departmental faculty, and their peers.

American Politics
PLAD 514 - (3) (Y)
Sex Differences: Biology, Culture, Politics and Policy
Prerequisite: Instructor permission. An exploration of sex and gender differences—traits such as sexuality, cognition, nurturance, and aggression—with a consideration of their causes, significance, and political/policy implications.

PLAD 526 - (3) (Y)
Special Topics in Public Administration
Prerequisite: Any PLA course or instructor permission. Intensive analysis of selected issues in public policy or public administration.

PLAD 530 - (3) (Y)
Politics of Mental Health
Prerequisite: one course in PLAP or permission of instructor. A seminar examining the relationships between politics, policy and psychological well-being. Topics include institutionalization, deinstitutionalization, civil rights, mandated treatment, the role of government in service delivery and insurance coverage, social determinants of health, public opinion about mental health and illness.

PLAD 543 - (3) (Y)
Intergovernmental Relations
Prerequisite: Six credits of PLAP or fourth-year standing. Analyzes the contemporary relations of national, state, and local governments. Examines urban and metropolitan growth problems and their implications for public policy and administration in relation to the federal system.

PLAD 545 - (3) (Y)
Virginia Government and Politics
Prerequisite: Instructor permission. Analyzes Virginia government at the state, county, municipal, and special district levels. Considers legislative, executive, judicial organization, intergovernmental relations, and structural and political arrangements in the existing and emerging metropolitan areas. Limited enrollment.

PLAD 565 - (3) (Y)
Economics, Values, and Public Policy
Introduces economic concepts of special relevance to administrative and political decision making. Some attention is also given to critiques of economic perspectives on public policy.

PLAD 585 - (3) (Y)
Seminar on Constitutional Law and Theory
An examination of classic and contemporary theories, partial theories, and perspectives on constitutional interpretation.

PLAP 592 - (3) (IR)
Judicial Policy-Making
Prerequisite: Nine credits in PLAP and instructor permission. Examines the structure and process of judicial policymaking, focusing on agenda-setting, deciding cases and opinion writing, implementation, compliance, and impact. Particular attention is given to the United States Supreme Court and its relationship to lower federal and state courts and the political environment.

PLAP 595 - (3) (S)
Selected Problems in American Politics
Prerequisite: Instructor permission. Independent study under faculty supervision, for students who are preparing for intensive research on a specific topic.

PLAP 700 - (3) (Y)
National Institutions and Processes
Studies the constitutional principles of American government and the functions and interactions of the leading institutions—Congress, the president, courts, the bureaucracy, and political parties. (An introductory seminar for graduate students, particularly for those whose study of American government has been limited.)

PLAP 711 - (3) (Y)
American Political Behavior
Introduces the fields of public opinion, mass media, political psychology, voting behavior, and other forms of political participation. Focuses primarily but not exclusively on research conducted in the United States.

PLAP 741 - (3) (IR)
Survey of State and Local Government
Readings and research on the institutions, processes, and interrelationships of state, local, and governmental units smaller than national in scope.

PLAP 759 - (3) (IR)
Intergovernmental Relations

PLAP 760 - (3) (Y)
Public Administration
General introduction to public administration at the graduate level, emphasizing the political and ecological influences upon it, the problems of internal organization and management, and the problems and methods of innovation and change.

PLAP 766 - (3) (Y)
Policy Analysis
Analyzes public policy problems. Emphasizes the use of program evaluation, public management, and decision analysis on national and local programs.

PLAP 777 - (3) (IR)
Groups in the Political Processes
A critical survey of the roles of groups in the American political system.
PLAP 813 - (3) (IR)
Public Affairs Seminar I
Prerequisite: Instructor permission.
Analyzes the American political system and the principal policy making institutions. Includes a review of the philosophical and historical origins of the American system; its evolution; the roles of public opinion, interests, and parties; the functions and problems of legislative and executive institutions; and key aspects of modern federalism. Designed as a core course for participants in the Mid-Career Government Executives Program.

PLAP 814 - (1) (IR)
Public Affairs Seminar II
Prerequisite: Instructor permission.
A continuation of PLAP 813, emphasizing the role of the public executive; contemporary problems of leadership and management in the public service; and the analysis of selected policy problems.

PLAP 821 - (3) (Y)
The American Presidency
Readings and research on special problems of the American political and administrative system that come to a focus in the presidency or arise out of the manifold responsibilities of the president.

PLAP 822 - (3) (IR)
The Party System and the Conduct of Government
Readings and research, emphasizing the functions of parties in the conduct of government, and the evolution of the party system in response to changes in the broader economic, social, and political environment.

PLAP 823 - (3) (IR)
Topics in American Government
PLAP 825 - (3) (Y)
The American Congress
Studies the legislative process in the U.S. Congress. Topics include the internal distribution of power, influences on legislative behavior, congressional relationships with other political institutions, the place of Congress in the American polity, and the problems associated with it.

PLAP 841 - (3) (IR)
Seminars in Comparative State Politics
Prerequisite: PLAP 741 or the equivalent.
Studies state government from a comparative perspective, emphasizing the relationship of political, economic, and social variables to state policies and politics.

PLAP 844 - (3) (IR)
Urban Politics
Studies patterns of power and influence in urban decision-making. Topics include social, economic, and other factors influencing urban political institutions; patterns of leadership and political behavior in central cities and suburbs; issues of the exploding metropolis, including urban renewal, finances, transportation, education, reform, and state and federal intervention; and methodological problems.

PLAP 861 - (3) (IR)
Seminars in Public Administration
Readings and research in public administration theory and practice and contemporary administrative problems.

PLAP 862 - (3) (Y)
Topics in Public Administration
PLAP 863 - (3) (IR)
Executive Leadership
Explores the careers, personalities, and styles of top executive leaders, the organizational structures and managerial processes available to them, and the dilemmas in establishing and maintaining a leadership role. Emphasizes the president and federal department heads, comparing them to chief executives in government, education, and other public organizations.

PLAP 868 - (3) (IR)
Urban Administration and Policy
Examines urban problems and the strategies to attack them. Emphasizes the role of the local executive, including issues such as service delivery, responsiveness, planning, intergovernmental relations.

PLAP 873 - (3) (IR)
Financial Administration and Budgeting
Explores the philosophy and processes of fiscal management and control, including budget preparation, legislative consideration and authorization, budget execution, debt management, and audit. Examines problems and proposals such as zero based budgeting, sunset legislation, program evaluation, policy analysis, and intergovernmental financial relationships.

PLAP 874 - (3) (IR)
Personnel Administration
Studies the theories and application of public personnel systems and administration.

PLAP 877 - (3) (Y)
Ethical Issues in Politics and Policy
Explores the relationship between ethics, prudence, and public policy in political and administrative settings.

PLAP 883 - (3) (IR)
Topics in Public Law
PLAP 884 - (3) (Y)
Seminars in Civil Rights and Liberties
Prerequisite: Instructor permission.
Explores the vexatious lines between the rights of individuals and those of the state in democratic society, focusing on such major issues as freedom of expression and worship; separation of church and state; criminal justice; the suffrage; privacy; and racial and gender discrimination. Focuses on the judicial process.

PLAP 885 - (3) (Y)
American Constitutional Law and Theory Seminar
Prerequisite: Instructor permission.
Examines the nature and parameters of the judicial function, focusing on law courts and jurists, with an emphasis on the political role of the Supreme Court of the United States.

PLAP 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

PLAP 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

PLAP 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

PLAP 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Comparative Politics

PLCP 502 - (3) (IR)
Comparative Political Systems of Southern Europe
Prerequisite: PLCP 201, 311, or instructor permission.
Comprehensive survey of selected political systems in Southern Europe, such as France, Italy, Spain, and Portugal.

PLCP 506 - (3) (Y)
Political Development and Developmental Politics
Prerequisite: One course in PLCP or instructor permission.
Critical examination and analysis of the basic theories of political development. Emphasizes the development of modern nation state in Europe and the Developing World from 1400 to 2000.

PLCP 511 - (3) (IR)
Government and Politics of Western Europe
Prerequisite: Graduate status or instructor permission.
In-depth analysis of the institutional structures and policy processes of selected political systems in Europe today. Focuses on legislatures, political executives, administrative bureaucracies and their interrelationships as they effect policymaking and policy implementation.

PLCP 520 - (3) (IR)
Comparative Political Parties
Examines political parties in a variety of institutional and socioeconomic settings, focusing on parties in the democratic political systems of Europe, the United States, and Japan.

PLCP 521 - (3) (Y)
Soviet and Post-Soviet Politics
Prerequisite: Graduate status or instructor permission.
Studies the political institutions and processes in the former Soviet Union and its successor states from 1917 to the present. Focuses on modernization, social change, changing structures and institutions, political mobilization, political cultures, nationality issues, and the problems of reform, system transformation and democratization.
PLCP 523 - (3) (Y)  
Politics of Eastern Europe  
Prerequisite: Some background in comparative politics and/or history of Eastern Europe. Studies the development of political institutions in Eastern Europe since 1989. Comparative analysis of the differing paths of development taken by the East Europe regimes. Includes the history of the region. Examines the transitions, the development of political parties, economic reforms, and institutional development, as well as security issues, including the Yugoslav conflict and the expansion of Western security arrangements into Eastern Europe.

PLCP 525 - (3) (Y)  
Politics of Economic Reform  
Prerequisite: Previous course in PLCP, PLIR, or economics is recommended. A wave of economic change has swept across countries from Argentina to Zimbabwe over the last 15 years. The unfolding of these changes has been structured by and, in turn, has shaped the politics of the countries in which they have occurred. Formulates an analytical framework for understanding the politics of economic reform. Studies cases in Latin America, Africa, Asia, and Eastern Europe.

PLCP 531 - (3) (IR)  
Politics of Latin America  
Prerequisite: Some background in comparative politics and/or history of Latin America. Studies the constitutional, political, and administrative systems of the major countries of Latin America, the political implications of economic development and social reform, and nationalist theories of socio-political development.

PLCP 533 - (3) (IR)  
Political Parties and Movements in Latin America  
Studies the origins, activities, and contemporary position of the major political parties and movements in Latin America and Spain, and their relationship to economic development, social reform, and the conduct of government in the principal Latin American states.

PLCP 535 - (3) (Y)  
Democratic Theory and Democratization in Latin America  
Investigates the various democratic theories and the democratization process in Latin America. Evaluates these theories and the democratization process in the contemporary global environment.

PLCP 536 - (3) (IR)  
Role of the Military in Latin America  
Prerequisite: Some background in comparative politics and/or history of Latin America. Examines the impact of the military on government and society, the conditions effecting military intervention against constitutional governments, and the circumstances in which military intervention occurs and is likely to occur in Latin America and Spain.

PLCP 541 - (3) (Y)  
Islam and Democracy in the Middle East  
Prerequisite: PLCP 341 or equivalent. Studies the prospects for democratic transitions in Middle Eastern states, emphasizing the role of Islamic political movements.

PLCP 551 - (3) (Y)  
Politics of China  
Prerequisite: Some background in comparative politics and/or history of China. Studies the structure and process of the Chinese political system, emphasizing political culture, socio-economic development, and political socialization.

PLCP 553 - (3) (Y)  
Politics of Japan  
Prerequisite: Some background in comparative politics and/or history of Japan. Surveys contemporary Japanese society and political behavior including such topics as political culture, interest groups, political parties, parliamentary democracy, decision-making, and public policy.

PLCP 563 - (3) (E)  
Politics of Vietnam  
Prerequisite: Some background in comparative politics and/or history of Asia. Comprehensive introduction to Vietnamese politics, including its domestic political development and its international relations. Focuses on contemporary Vietnam, but also considers the historical development of Vietnamese politics.

PLCP 581 - (3) (Y)  
Politics of Sub-Saharan Africa  
Prerequisite: Some background in comparative politics and/or history of Africa; open to students who have taken PLCP 381. Studies the government and politics of sub-Saharan Africa. Includes the colonial experience and the rise of African nationalism; the transition to independence; the rise and fall of African one-party states; the role of the military in African politics; the politics of ethnicity, nation- and state-building; patron-client relations; development problems faced by African regimes, including relations with external actors; and the political future of Southern Africa.

PLCP 583 - (3) (Y)  
Modern South African Politics  
Prerequisite: HIAF 392 or at least one course in economics, African history, political economy/development, or African literature. Examines twentieth-century South African politics with a focus on the rise and fall of apartheid, in the context of the historical circumstances that produced it, the personal experiences of South Africans under apartheid, the local and international networks and movements of opposition it generated, and its enduring legacies.

PLCP 595 - (3) (S)  
Selected Problems in Comparative Politics  
Prerequisite: Instructor permission. Independent study, under faculty supervision, for intensive research on a specific topic.

PLCP 700 - (3) (Y)  
Comparative Politics Core Seminar

PLCP 741 - (3) (Y)  
Government and Politics of the Middle East  
This seminar examines various topics in the government and politics.

PLCP 801, 802 - (3) (Y)  
Seminar in Comparative Political Systems I, II  
Readings and research on aspects of contemporary political systems suitable for comparative study.

PLCP 805 - (3) (IR)  
Processes of Change Affecting Governments  
Topics include anticipation and prediction; leadership and communication; processes that change social, economic, and political systems; and government as the steering mechanism.

PLCP 811 - (3) (IR)  
Topics in the Government and Politics of Western Europe  
Studies the contemporary politics and society of a country or group of countries. 811A: Great Britain. 811B: France. 811C: Germany. 811D: Italy and Spain. 811E: Scandinavia. These courses are given on a rotating basis.

PLCP 814 - (3) (IR)  
Origins of Democracy and Dictatorship  
Analyzes the major theories explaining transitions to democratic regimes and their consolidation or reversion to authoritarian regimes. Case material is drawn from the 19th and 20th centuries from all regions of the world.

PLCP 821 - (3) (Y)  
Topics in the Government and Politics of U.S.S.R. and Eastern Europe

PLCP 831 - (3) (O)  
Topics in the Government and Politics of Latin America

PLCP 842 - (3) (IR)  
Topics in the Government and Politics of the Middle East

PLCP 851 - (3) (E)  
Topics in the Government and Politics of China

PLCP 853 - (3) (IR)  
Topics in the Government and Politics of Japan

PLCP 861 - (3) (IR)  
Topics in the Government and Politics of South Asia  
Studies the development of political and administrative institutions and practices in modern India.
PLCP 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master's research, taken before a thesis director has been selected.

PLCP 998 - (3-12) (S)
Non-Topical Research
For master's thesis, taken under the supervision of a thesis director.

PLC 999 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

PLIR 205 or instructor permission.

Prerequisite:

International Political Economy
PLIR 538 - (3) (IR)
Saharan Africa, including inter-African relations as well as Africa's relations with the major powers, and the international dimensions of the Southern African situation. Explores alternative policy options open to African states. Considers a number of case studies which illustrate the policy alternatives.

Selected Problems in International Relations
Prerequisite: Instructor permission.

Independent study, under faculty supervision, for intensive research on a specific topic.

PLIR 700 - (3) (Y)
Core Seminar in International Relations
Provides an overview of the main schools, theorists, and problems in the study of international relations and foreign policy. It is the core seminar for the international relations sub-field and thus aims to represents its contemporary character.

PLIR 706 - (3) (IR)
The Development of Classical Strategic Thought
Studies the evolution of military strategy before the nuclear age. Examines the writings of major classical theorists, including Sun Tzu, Thucydides, Vegetius, Machiavelli, Frederick the Great, Clausewitz, Jomini, Mahan, Douhet, Mackinder, Mao Tse-Tung, and Liddell Hart. This course is the first half of a two-part series, the second half of which will examine the development of strategy in the nuclear age.

PLIR 708 - (3) (Y)
Military Force in International Relations
Examines the threat and use of military force in international relations. Surveys the conceptual and theoretical literature on the subject; evaluates leading theories in light of historical experience; and explores a variety of factors that have traditionally conditioned the use of force, including ethical considerations, international law and organizations, the policy-making process, and public opinion.

PLIR 712 - (3) (IR)
Theory of International Law
Analyzes the functions of law, and the interrelationship of legal and political factors and processes, in the international system. Emphasizes a critical appraisal of the concept of "the rule of law" in international relations.

PLIR 721 - (3) (IR)
International Organizations
Studies the evolution, objectives, and methods of international organizations; the role of international organizations in contemporary international relations; and an analysis of the principal functions of the United Nations.

PLIR 738 - (3) (Y)
International Political Economy
Provides an understanding of some of the basic principles of international economics as they relate to state and political changes, and the ways in which states and political conflict have in turn changed the "rules" of international economics over the last four centuries.

PLIR 740 - (3) (IR)
Foreign Policy of the United States
Study of the background, processes, and select policy problems of American foreign policy.

PLIR 741 - (3) (IR)
Contemporary U.S. Foreign Policy
Analyzes contemporary American foreign policy, with an emphasis on the Carter, Reagan, Bush, and Clinton administrations.

Note: Courses in international economics and economic development may be elected as part of a special or outside subfield, or they may be taken in support of other work. See courses listed under the Department of Economics.

PLIR 504 - (3) (Y)
Nationalism and World Politics
Prerequisite: PLIR 101 or PLIR 102, or instructor permission.

Explores the effects of the ideology of nationalism on relations among states and the international system in general, particularly as regards war and conflict.

PLIR 507 - (3) (IR)
Norms and Value Systems in International Relations
Prerequisite: Two courses in PLIR or instructor permission.

Analyzes the formation, operation, and effect of norms, values, and "regimes" in international relations. Considers topics such as human rights, the role of religion and ideology, and the relationship of norms to international institutions.

PLIR 522 - (3) (IR)
Conflict Management in International Law and Organizations
Prerequisite: PLIR 321 or 421, or instructor permission; or graduate status.

Analyzes the principles and methods involved in the management of political conflicts by international organizations. Includes case studies of peaceful settlement, peacekeeping operations, and sanctions. Emphasizes the political role of the secretary general and the problems of organizing international sanctions.

PLIR 538 - (3) (IR)
International Political Economy
Prerequisite: PLIR 205 or instructor permission.

Intensive analysis of concepts and selected issues, both historical and contemporary, found in the interfacing of politics and economics in international relations.
PLIR 752 - (3) (Y)
Western Europe in World Affairs
Studies the contemporary political, military, economic, and social problems of Western Europe, and their effects on the world position of the countries of Western Europe and on European integration and federation.

PLIR 765 - (3) (O)
The Middle East in World Affairs
Examines various topics and theories in Middle Eastern affairs.

PLIR 808 - (3) (IR)
Problems of Force in International Relations
Prerequisite: PLIR 506 is recommended. Study of selected topics related to war, security arrangements, and the political functions of military capabilities in the international system.

PLIR 811 - (3) (IR)
Topics in International Law and Organizations
Research seminar on selected issues having both legal and organizational aspects.

PLIR 822 - (3) (IR)
Institutional Trends in the International System
Examines developments in regional functional or general political institutions.

PLIR 831 - (3) (Y)
Contemporary Debates in Human Rights
Considers the evolution of the idea of human rights and examines contemporary debates on its meaning and impact.

PLIR 832 - (3) (IR)
Seminar in International Politics
Comparative analysis of the stability of the major international settlements, emphasizing contemporary arms and territorial negotiations.

PLIR 835 - (3) (Y)
Normative Approaches to International Politics
Prerequisite: Instructor permission. Reviews major theories of morality and foreign policy, a discussion of outstanding issues and problems, an examination of case studies illustrating theories and problems, and an analysis of concepts of practical morality.

PLIR 836 - (3) (IR)
Ideological Topics in International Relations

PLIR 838 - (3) (Y)
Topics in International Political Economy
Prerequisite: PLIR 538 and at least three additional credits of international economics, or instructor permission. An intensive examination of selected topics covering international political economy.

PLIR 839 - (3) (Y)
Advanced Topics in International Relations Theory
Prerequisite: PLIR 700 or equivalent. Examines key issues in modern international relations theory, including offense versus realism, the formation of alliances, the role of institutions, the factors influencing trade policy, recent psychological approaches, and the role of ideas and norms.

PLIR 841 - (3) (IR)
Topics in United States Foreign Policy
Comparative analysis of the foreign policy perspectives of America's leading statesmen since the Second World War.

PLIR 842 - (3) (IR)
Comparative Foreign Policy

PLIR 843 - (3) (IR)
The Far East in U.S. Foreign Policy
A regional study of the political, institutional, and socio-economic factors in the development of United States policy in the Far East, emphasizing the area problems presented by the twentieth-century international revolutionary syndrome, including Korea, China, Japan, and the South East Asian peninsula.

PLIR 845 - (3) (Y)
American Foreign Policy: Cold War and After
Prerequisite: Instructor permission. Examines major approaches to the Cold War, its causes, origins and major periods and certain crucial policies and problems such as the Marshall Plan, containment and detente.

PLIR 852 - (3) (IR)
Western European Topics in World Affairs

PLIR 856 - (3) (IR)
Russian and Eastern European Topics in World Affairs

PLIR 862 - (3) (IR)
Latin American Topics in World Affairs

PLIR 866 - (3) (IR)
Middle Eastern Topics in World Affairs

PLIR 872 - (3) (O)
Chinese Topics in World Affairs

PLIR 873 - (3) (IR)
Japanese Topics in World Affairs

PLIR 876 - (3) (IR)
South Asian Topics in World Affairs

PLIR 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

PLIR 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

PLIR 997 - (3-12) (S)
Non-Topical Research
For doctoral research, taken before a dissertation director has been selected.

PLIR 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

PLIR 501 - (3) (IR)
Nature of Political Inquiry
Prerequisite: Instructor permission or graduate status. Important conceptual issues encountered in the scientific study of politics, including an introduction to the philosophy of science, classic contributions to the scientific study of politics; and the problems of "value free" science, and studying "meaningful" behavior.

PLPT 700 - (3) (Y)
Introduction to Political Theory
Introduces the themes, methods, and development of political theory from classical antiquity to the present.

PLPT 722 - (3) (IR)
American Political Thought
Studies the development of American political thought by major contributors.
**PLPT 802 - (3) (IR)**
Problems of Political Philosophy
Detailed study of one or more problems in political philosophy.

**PLPT 803 - (3) (Y)**
Topics in Modern Political Philosophy
Special study and intensive analysis of a select number of modern writers.

**PLPT 821 - (3) (IR)**
Seminar in American Political Thought and Institutions
Selected topics for advanced law or graduate students in government or history.

**PLPT 897 - (3-12) (S)**
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

**PLPT 898 - (3-12) (S)**
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

**PLPT 997 - (3-12) (S)**
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

**PLPT 999 - (3-12) (S)**
Non-Topical Research
For doctoral Dissertation, taken under the supervision of a dissertation director.

---

**Department of Psychology**
102 Gilmer Hall
University of Virginia
P.O. Box 400400
Charlottesville, VA 22904-4400
(434) 982-4750 Fax: (434) 982-4766
www.virginia.edu/psychology

**Degree Requirements**
Students are accepted into the Ph.D. program only. The M.A. is earned by students as they work toward the doctorate. The M.A. in Psychology entails 30 credits of course work which must include two semesters of quantitative methods. In addition, each student must complete an acceptable pre-dissertation research project of potentially publishable quality.

The requirements for the Ph.D. are as follows:
1. The satisfactory completion of all requirements for the M.A.;
2. A major qualifying examination;
3. A total of 54 credits of course work (including those presented for the M.A. but excluding non-topical research and practicum);
4. Work experience in the form of teaching and internship;

The psychology department has no formal foreign language requirements. However, the advisory committee for any graduate student may require evidence of professional skills beyond psychology courses as part of the student’s degree program. Each student is required to teach, participate in research, and/or acquire training in a clinical or community setting during each semester that the student is in residence.

**Graduate Programs**
The purpose of the graduate programs in the Department of Psychology is to prepare the student for research, both basic and applied, and teaching. The department offers Ph.D. programs in seven areas of psychology: clinical, cognitive, community, developmental, psychobiology, quantitative, and social. Various combinations of these specialties are possible, depending on students’ interests and professional goals.

**Departmental Facilities**
The Department of Psychology is located in Gilmer Hall. The air-conditioned, five story building provides the department in excess of 50,000 square feet for offices, laboratories, and classrooms. The department is well endowed with computer equipment. Most of the computers in the department have links to the University’s local area network and to the Internet. Also located in Gilmer Hall is a branch of the University Library which houses current psychological journals and a large collection of relevant books, a shop for machine, wood, and electrical work, and a wide variety of laboratories for both human and animal research.

---

**Course Descriptions**

**PSYC 515 - (3) (Y)**
Advanced Cognition
*Prerequisite:* PSYC 215. Focuses on advanced topics in cognitive psychology. Begins with basic questions regarding the nature of cognitive psychology’s goals and methods, then moves on to core findings representing, and in the fields of attention, memory, motor control, and higher thought.

**PSYC 520 - (3) (Y)**
Seminar in Psychobiology
*Prerequisite:* PSYC 220, 222, or 420. Examines a major subject in psychobiology.

**PSYC 521 - (3) (IR)**
Developmental Psychobiology
*Prerequisite:* PSYC 220, 222, or 420 or instructor permission. Examines behavior and neural development with an emphasis on animal models. Topics include the role of both intrinsic and extrinsic factors in directing maturation, attachment and early learning, theoretical conceptions of development, and regulatory mechanisms.

**PSYC 525 - (3) (IR)**
Hormones and Behavior
*Prerequisite:* Instructor permission. Examines the role of hormones in mediating and modulating many complex behaviors such as memory, aggression, sexual behavior, and regulatory actions between hormones and the brain.

**PSYC 526 - (3) (IR)**
Psychobiology and Memory
*Prerequisite:* PSYC 220, 222, or 420. Studies the major theories, findings, and conceptual issues important to an analysis of the neuronal mechanisms that underlie memory storage.

**PSYC 532 - (3) (IR)**
Chemical Senses: Taste and Smell
*Prerequisite:* PSYC 220, 222, or 420 or instructor permission. Examines the neurobiology of the chemical senses by examining the biophysical basis of sensory transduction, the anatomical organization of two systems, and the physiological properties of peripheral and central structures along the gustatory and olfactory pathways. Emphasizes new, important findings in taste and smell.

**PSYC 533 - (3) (IR)**
Neural Network Models of Cognition and Brain Computation
*Prerequisite:* Must be PC-literate and willing to program. Introduces, from an elementary but somewhat mathematical viewpoint, the newly developing field of neural networks. Examines the basic principles of neural network theory as it relates to biological neural networks.

**PSYC 535 - (3) (IR)**
Neurochemical Systems in Learning and Memory
*Prerequisite:* PSYC 220 or 222, or instructor permission. Examines historical and current theories implicating the involvement of specific neurotransmitter, amino-acid, and peptide systems in regulating learning and the encoding of memory. Provides an extensive review of the literature in order to understand mechanisms by which chemical compounds modify learning and the brain sites where neurochemicals exert their effects.

**PSYC 541 - (3) (IR)**
Special Issues in the Psychological Study of Children, Families, and the Law
*Prerequisite:* PSYC 346 or instructor permission. Examines two topics that relate to children, families and the law, such as adolescent decision-making in the legal system, domestic violence, and child custody.

**PSYC 554 - (3) (IR)**
Theories of Cognitive Development
*Prerequisite:* Instructor permission. Studies current theories of cognitive development from birth through adolescence. Includes the views of Piaget, Werner, Bruner, G. H. Mead, and others; cybernetic approaches covered briefly; with some discussion of the measurement and assessment of cognitive processes.

**PSYC 555 - (3) (Y)**
Developmental Psycholinguistics
*Prerequisite:* Upper-level psychology major or linguistics student, or graduate student in Arts and Sciences or Education. Examines current research and theoretical models of children’s language acquisition. Topics include normal children’s acquisition of spoken language skills, and the development of communication skills in deaf, autistic, and other groups of language-handicapped children.
PSYC 560 - (3) (IR)
Dynamical Systems in Social Behavior
Prerequisite: PSYC 260 and PSYC 230; completion of PSYC 305, 306 is strongly recommended.
Applies dynamical systems theory to the analysis of action, interaction, and interpersonal relationships. Includes a review of research employing dynamical systems models and analytic techniques, and close consideration of the application of these ideas to psychological contexts.

PSYC 565 - (3) (IR)
Psychology of Morality
Prerequisite: PSYC 305 and 12 additional credits in PSYC, graduate standing, or instructor permission.
Studies why people care so much about what other people do. Readings include primatology, anthropology, philosophy, and psychology. Topics include evolution, cultural variation, sociopathy, and the moralization of the body.

PSYC 581, 582, 583, 584 - (3) (S)
Current Topics in Psychology
Prerequisite: Instructor permission.
Seminars on special and current topics in psychology. May be repeated for credit.

PSYC 701 - (3) (IR)
Theoretical Psychology
Evaluates prominent historical and contemporary theoretical positions in psychology.

PSYC 710 - (3) (IR)
Cognition
Studies the facts of human information processing and their theoretical implications. Topics include memory, pattern recognition, problem solving, and psycholinguistics.

PSYC 711 - (3) (IR)
Psycholinguistics
Surveys the psychology of language for graduate students in disciplines related to linguistics. Topics include linguistic theory applied to the production and comprehension of language, development of language, biology of language, and pathologies of language.

PSYC 715 - (3) (Y)
Cognitive Processes
Prerequisite: Instructor permission.
Explores, in depth, the life of the mind. Topics include pattern recognition; observational skills; remembering; language and thought; categorization; the nature of similarity; discovery and invention; problem and puzzle solution; animal cognition; and views of intelligence in man and machine.

PSYC 720 - (3) (Y)
Physiological Psychology
Studies the biological mechanisms and processes underlying behavior, sensory functions, and internal regulation.

PSYC 736 - (3) (IR)
Advanced Perception
A systematic study of visual, auditory, and cutaneous perception.

PSYC 740, 741 - (1) (Y)
Introduction to Clinical Intervention
Prerequisite: First- or second-year students in the clinical psychology training program or instructor permission.
Introduces the ethical issues, principles, and techniques of psychotherapy. Includes introduction to and practice in case conceptualization, designing intervention plans, and active listening skills. Emphasizes individual psychotherapy with adolescents and adults.

PSYC 742 - (4) (Y)
Psychological Intervention I
Prerequisite: Instructor permission.
An overview of psychotherapy process and outcome research, ethnicity issues in psychotherapy and ethical considerations. Begins the survey of adult psychotherapy. Emphasizes a problem-focused, rather than a treatment-focused perspective. Three lecture hours, practicum in supervised intervention.

PSYC 743, 744 - (4) (Y)
Psychological Assessment
Prerequisite: Instructor permission.
Topics include strategies of assessment, issues of reliability and validity, test construction; theory and practice of individual, couple, family, and community assessment techniques, including testing, interviewing, observation; and assessment research. Three lecture hours, two lab hours.

PSYC 745 - (4) (Y)
Psychological Intervention II
Prerequisite: Instructor permission.
Concludes the problem-focused survey of adult psychotherapy. Provides a survey of therapy focused on relationship issues in the family, including couples therapy, divorce issues, and especially, child and family therapy. Three lecture hours, practicum in supervised intervention.

PSYC 746 - (3) (Y)
Research Methods in Clinical Psychology
Prerequisite: Instructor permission.
Introduces methodology and design in clinical research, covering both laboratory and naturalistic approaches. Topics include clinical psychophysiology, measurement of process and outcome in psychotherapy, patterns of family interaction, and program evaluation. Students will engage in design and execution of original research.

PSYC 747 - (3) (Y)
Experimental Psychopathology
Prerequisite: Instructor permission.
Reviews symptomatological, classificatory, and epidemiological issues, and surveys the psychological, behavior-genetic, and psychophysiological literature in abnormal psychology. Emphasizes adult psychopathology.

PSYC 748 - (4) (E)
Community Psychology and Prevention Science I: Research and Consultation
Prerequisite: Instructor permission.
Introduces the broad area of community psychology and prevention science. Topics include social ecology and primary prevention; conceptions, strategies, and tactics of social intervention; the creation of settings; and interventions in the education, mental health, mental retardation and criminal justice systems. Weekly seminar meetings and participation in community laboratory required.

PSYC 749 - (4) (O)
Community Psychology and Prevention Science II: Intervention and Research in Social Systems
Prerequisite: PSYC 748 or instructor permission.
A continuation of PSYC 748 (including the community laboratory) focusing on interventions and research issues for specific social problems and the social systems in which they occur; e.g., education, mental health, criminal justice, welfare, employment, race relations. Emphasizes application of the conceptual models and strategies of community psychology to substantive areas and research issues, and the implications of intervention and research for social change and public policy.

PSYC 751 - (3) (O)
Research Methods in Developmental Psychology
Prerequisite: Instructor permission.
Introduces problems in conceptualization, methodology, and design in developmental research. Emphasizes the concept of development, naturalistic methods, and cross-sectional, longitudinal, and sequential designs.

PSYC 757 - (3) (O)
Behavior Disorders in Childhood
Surveys the psychological problems encountered by infants, children, and adolescents. Focuses on the descriptive characteristics of each disorder and presents theoretical etiologies and proposed treatments. Emphasizes empirical findings, although various models of disorder are considered including learning, family, developmental, biological, and psychodynamic approaches. Reviews current thinking concerning psychological disorders of children, providing a critical perspective.

PSYC 758 - (3) (IR)
Adolescent Development
Surveys the major research findings and theories dealing with the transition from childhood to adulthood. Explores physical, emotional, cognitive-intellectual, social, and moral development along with a brief presentation of the educational and/or therapeutic treatment for problems in development.

PSYC 760 - (3) (E)
Social Psychology
Surveys the major empirical and theoretical concepts in social psychology.

PSYC 761 - (3) (O)
Advanced Research Methods in Social Psychology
Prerequisite: One semester of graduate statistics and PSYC 760 or instructor permission.
Surveys various research approaches to social psychological problems; discusses selected methodological issues; and practices designing and criticizing research techniques on assorted psychological topics.
PSYC 762 - (3) (IR)
Social Cognition and Human Inference
Pre requisite: Graduate standing in psychology or instructor permission.
Examines the rules and strategies people use when making social judgments, predictions, causal inferences, and assessments of covariation. Considers how these rules and strategies compare to normative models of inference; the types and consequences of inferential errors; and how human inference can be improved.

PSYC 763 - (3) (IR)
Nonverbal Communication and Deception
Pre requisite: Graduate standing or instructor permission.
Research and theory in the psychology of nonverbal communication and deception.

PSYC 771 - (4) (Y)
Quantitative Methods I: Probability and Statistical Inference
Pre requisite: Graduate status or instructor permission.
Studies fundamental probability and statistical inference used in the behavioral sciences: set theory, probability distributions, conditional probability, random variables, estimation, sampling distributions, hypothesis testing (t-test for means, F-test for variances) and confidence intervals. Computer work with SPSS. Three lecture and two laboratory hours.

PSYC 772 - (4) (Y)
Quantitative Methods II: Experimental Design
Pre requisite: PSYC 771 or equivalent.
Includes Chi-square tests for contingency tables, correlation, multiple regression, analysis of variance of one-way and factorial designs including repeated measures experiments, and analysis of covariance. Extension work with SPSS and MANOVA computer routines.

PSYC 776 - (3) (Y)
Introduction to Applied Multivariate Methods
Pre requisite: PSYC 771-772 or equivalent.
Introduces major statistical methods used for the data analysis of multiple measures. Includes elementary matrix algebra, multivariate regression (canonical correlation; multivariate analysis of variance and covariance; and discriminant analysis and classification), correlational methods (principal components and exploratory and confirmatory factor analysis), and the analysis of multivariate contingency tables using log-linear models. Emphasizes concepts, issues, and examples over mathematical derivations.

PSYC 781 - (3) (IR)
How to Do Things with Numbers
Pre requisite: One 300-level course in statistics.
Introduces handling and presenting data in the social sciences. Uses data collected by students in the hopes of revealing unsuspected patterns; teaches how to summarize data for public presentation and publication.

PSYC 791, 792, 793, 794, 795, 796, 797, 798 - (2) (S)
Contemporary Issues in Psychology
Pre requisite: Graduate standing in psychology or instructor permission.
Discusses contemporary developments in psychological theory, methods, and research.

PSYC 804 - (1) (Y)
Forum on Scientific and Professional Ethics
Pre requisite: second-year standing in a graduate program in the Department of Psychology or instructor permission.
Studies scholarly writings, empirical research, and current developments relating to ethics in psychology, and relevant ethical codes and regulations influencing the conduct of scientists and educators. Focuses on recognizing and resolving ethical dilemmas in academic and research settings.

PSYC 805 - (4) (IR)
Public Policy, Children, and Families
Pre requisite: Instructor permission.
Examines the use of psychological knowledge in the design, implementation, and assessment of public policies. Introduces the opportunities, dilemmas, and constraints affecting the relation between science and policy, particularly federal legislative policies for children and families.

PSYC 846 - (3) (IR)
The Minority Family
Pre requisite: Instructor permission.
A critical examination of the current state of research on minority families, including Black, Native American, Chicano, and Asian-American.

PSYC 847 - (3) (IR)
Ecological Theory and Assessment
Pre requisite: Instructor permission.
Surveys the theories of person-environment interaction/transaction and other ecologically oriented theories of human behavior. Emphasizes procedures for assessing the environmental context (physical and social) of behavior.

PSYC 848 - (3) (IR)
Social Ecology and Development
Pre requisite: Instructor permission.
Studies areas of interest common to community and developmental psychology. Introduces the ecological perspective as an approach for studying development, intervention, and change. Developmental and community faculty members present research, which is discussed and interpreted in light of ecological and developmental perspectives.

PSYC 852 - (3) (IR)
Social and Personality Development
Pre requisite: Instructor permission.
Analyzes current theory and research in social and personality developments from infancy through adolescence.

PSYC 853 - (3) (IR)
Family Relations and Human Development
Pre requisite: Instructor permission.
Deals with the theory, methods, and findings in the study of families. Emphasizes family systems, developmental, and ecological perspectives. Focuses on the contributions of family relations to the psychological well-being and psychopathology of family members. Explores changing family relations over the course of the life span.

PSYC 855 - (3) (IR)
Language Development
Pre requisite: Instructor permission.
Introduces current theory and research in language development. Emphasizes the development of communication skills and symbolic processes.

PSYC 860 - (4) (E)
Mental Health, Law, and Children
Pre requisite: Instructor permission; or second-year standing in a graduate program in the Department of Psychology.
Surveys the interaction between the legal system and current research and practices relating to the mental health of children and families. Covers children in the juvenile justice system, child custody, child forensic psychology, child maltreatment, minor’s rights and legal issues in the schools. Includes a community/clinical laboratory. Three class and two laboratory hours.

PSYC 872 - (3) (Y)
Psycho-Epidemiological Methods
Pre requisite: PSYC 776 or instructor permission.
Surveys techniques for structural analysis of multivariate systems. Considers principal components, exploratory and confirmatory factor analysis time series, path analysis, and congeneric test models.

PSYC 881, 882, 883, 884, 885, 886 - (3) (S)
Current Problems in Psychology
Examines procedures employed in the investigation of current controversial problems.

PSYC 897 - (1-12) (S)
Non-Topical Research, Preparation for Thesis
For master’s research, taken before a thesis director has been selected.

PSYC 908 - (1-12) (S)
Non-Topical Research
For master’s research, taken under the supervision of a thesis director.

PSYC 911-920 - (1-12) (S)
Topical Research

PSYC 994 - (3-12) (S)
Readings in Psychology

PSYC 997 - (1-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

PSYC 998 - (1-3) (Y)
Practicum in Case Consultation
Pre requisite: Instructor permission.
Supervision in case assessment, evaluation, and intervention. Emphasizes issues involved in case management; types of issues and decisions that may affect the outcome of intervention; pragmatic issues in dealing with people referred as clients; consultation procedures with referral agencies; and liaisons with community agencies. Student performance is evaluated on a satisfactory/unsatisfactory basis.
**Requirements**

**Admission** For both the Master of Science in Health Evaluation Sciences (M.S.) and the Master in Public Health (M.P.H.), applicants must possess a minimum of a bachelor’s degree from an accredited institution and must have taken the Graduate Record Exam (GRE) or Medical College Admission Test (MCAT). Students who hold an M.D., Ph.D., Pharm.D., J.D., or D.V.M. from an accredited American university are exempt from the GRE/MCAT requirement. Applications must be submitted to the Graduate School of Arts and Sciences with supporting transcripts and recommendations as described in the application packet. Those whose first language is not English must pass the TOEFL with a score of at least 600 (paper-based test) or 250 (computer-based test).

**Master of Science in Health Evaluation Sciences**

The Master of Science in Health Evaluation Sciences is a 31-credit program designed to be completed in one year, although part-time options spanning two or more years are also available. Students choose one of two tracks (or focus areas): Clinical Investigation and Patient-Oriented Research, or Informatics in Medicine and Health. Details concerning each track are available from the department. The program includes a core curriculum, a set of core electives, and courses specific to each track.

A thesis (resulting in a publishable manuscript) or a practicum project under the direct supervision of a PHS faculty advisor is required of all students. It may be a grant proposal, a project linked to the student’s job, or a practicum with a local health organization or research team. Upon completion, an oral presentation of the work before the PHS faculty is required.

**Departmental Core Courses:**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES 700 Intro. to Biostatistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HES 701 Fundamentals of Epidemiology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HES 745 Database Design and Implementation</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>HES 719 The Practice of Health Evaluation Sciences</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES 706 Evaluation Methods in Public Health and Health Informatics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HES 712 Health Technology and Outcomes</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HES 747 Health Care Quality Improvement</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HES 710 Health Care Policy &amp; Management</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Thesis or Project (choose one option):**

- Thesis: 5
- Practicum: 2

**Choose one elective with practicum:**

<table>
<thead>
<tr>
<th>Electives</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Electives</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Track</th>
<th>Objectives</th>
<th>Prerequisites</th>
<th>Core Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Topical Research</td>
<td>This track teaches students to apply the basic sciences of clinical investigation (including measurement, data analysis, computing) and clinical trials design, execution, and interpretation. Graduates are qualified to direct and evaluate clinical research and become effective clinical scientists.</td>
<td>A bachelor’s degree in biological or social sciences, or relevant experience.</td>
<td>Public Health, Biostatistics, Epidemiology, Public Health Policy and Management, Outcomes Evaluation, Health Informatics, and other related fields.</td>
</tr>
<tr>
<td>Clinical Investigation &amp; Patient-Oriented Research Track</td>
<td>This track teaches students to apply the basic sciences of clinical investigation (including measurement, data analysis, computing) and clinical trials design, execution, and interpretation. Graduates are qualified to direct and evaluate clinical research and become effective clinical scientists.</td>
<td>A bachelor’s degree in biological or social sciences, or relevant experience.</td>
<td>Public Health, Biostatistics, Epidemiology, Public Health Policy and Management, Outcomes Evaluation, Health Informatics, and other related fields.</td>
</tr>
</tbody>
</table>

**Informatics in Medicine and Health Track**

<table>
<thead>
<tr>
<th>Track</th>
<th>Objectives</th>
<th>Prerequisites</th>
<th>Core Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informatics in Medicine and Health</td>
<td>This track teaches students to understand, measure, and improve health services using health information and health data.</td>
<td>A bachelor’s degree in biological, economic, or social sciences, or relevant experience.</td>
<td>Public Health, Biostatistics, Epidemiology, Public Health Policy and Management, Outcomes Evaluation, Health Informatics, and other related fields.</td>
</tr>
</tbody>
</table>

**Degree Requirements**

As defined by the Council on Education for Public Health (CEPH), the Accreditation Criteria for the M.P.H. degree require the following: course work in five core areas of public health; additional course work in an area of concentration; and a field placement and a “culminating” experience that require students to synthesize and integrate knowledge from coursework and public health field work.

**Core Areas**

1. Biostatistics: collection, storage, retrieval, analysis and interpretation of health data; design and analysis of health-related surveys and experiments; and concepts and practice of statistical data analysis;
2. Epidemiology: distributions and determinants of disease, disabilities and death in human populations; the characteristics and dynamics of human populations; and the natural history of disease and the biological basis of health;
3. Environmental health sciences: environmental factors including biological, physical and chemical factors that affect the health of the community;
4. Health services administration: planning, organization, administration, management, evaluation and policy analysis of health programs; and
5. Social and behavioral sciences: concepts and methods of social and behavioral sciences relevant to the identification and the solution of public health problems.

**M.P.H. Field Placement**

Each student must complete a planned, supervised and evaluated practical experience. Practical knowledge and skills are considered an important component of a public health professional degree program; students must apply the knowledge and skills acquired through their courses of study. Placement
opportunities will be available with a wide range of community agencies, including local and state public health agencies in the program's geographic area, and federal agencies. Students may request an alternative to the traditional M.P.H. field placement based on well-defined criteria. The possession of a prior professional degree in another field or prior work experience that is not closely related to the academic objectives of the student's degree program would not be sufficient reason for changing the Field Placement requirement.

M.P.H. Culinminating Experience Students must complete a culminating experience that requires them to synthesize and integrate knowledge acquired in course work and other learning experiences and to apply theory and principles in a way that approximates some aspect of professional practice. Different models are possible, including written or oral comprehensive examinations, supervised practice placements, a major paper such as a thesis or an applied research project, or the development of case studies.

Required Courses and Tracks The M.P.H. degree program requires students to complete 42 credits of course work: at least 24 credits of required courses; 12 credits of course work in a track or concentration; and the remaining credits in electives.

Each student accepted into the M.P.H. program will identify a concentration and develop an individualized course of study with their advisor (and approved by an M.P.H. faculty steering committee) that addresses the student's professional interests, needs, and goals.

Students also must complete up to 6 credits to satisfy the field placement and culminating experience.

Core Courses:
- Epidemiology (HES 701)
- Biostatistics (HES 700)
- Environmental Health (HES 738)
- Health Policy/Health Administration (HES 710)
- Social and Behavioral Sciences (HES 735)

Other Required Courses:
Includes two supplemental quantitative courses, Public Health Law and Ethics (HES 705) and at least 4 track-specific courses.

Course Descriptions
HES 700, 500 - (3) (Y) Fundamentals of Epidemiology
Prerequisite: Graduate standing in the PHS program or instructor permission.
Introduces the field of Epidemiology and the methods of epidemiologic research. Students learn how to interpret, critique, and conduct epidemiologic research, including formulating a research question, choosing a study design, collecting and analyzing data, controlling bias and confounding, and interpreting study results. May be open to undergraduates as HES 501 with instructor permission.

HES 702 - (2) (Y) Applied Epidemiologic Methods
Prerequisite: HES 701 or instructor permission.
Surveys the epidemiology of different infectious and chronic diseases, covering their natural history, clinical course, and risk factors. Students apply this knowledge to a disease of interest to them and write a research proposal to address their topic.

HES 705, 505 - (3) (Y) Germs, Guns, & Lead: Public Health Ethics and Law
Required fall course for Community & Public Health track. Explores the legitimacy, design, and implementation of a variety of policies aiming to promote public health and reduce the social burden of disease and injury. Highlights the challenge posed by public health's population-based perspective to traditional individual-centered, autonomy-driven approaches to bioethics and constitutional law. Other themes center on conflicts between public health and public morality and the relationship between public health and social justice. Illustrative topics include mandatory immunization, screening and reporting of infectious diseases, prevention of lead poisoning, food safety, prevention of firearm injuries, airbags and seat belts, mandatory drug testing, syringe exchange programs, tobacco regulation, and restrictions on alcohol and tobacco advertising. May be open to undergraduates as HES 505 with instructor permission.

HES 706, 506 - (3) (Y) Evaluation Methods in Public Health & Health Care Informatics
Provides an overview of the principles and methods of evaluation in public health and health informatics. Covers evaluation paradigms, program planning, evaluation plan design, and use of evaluation findings. Frequent tools in evaluation (surveys, focus groups, and interviews) will be discussed in depth. Students will have the opportunity to design and conduct an evaluation for an existing program in public health or application in health informatics. May be open to undergraduates as HES 506 with instructor permission.

HES 707, 507 - (3) (Y) Health Care Informatics
Prerequisite: Graduate standing in the PHS program or instructor permission.
Explores nature and functions of health informatics, the current state of the science, present and future applications, and major issues for research and development. Includes information processing and management, decision support, computer-based patient records and information systems, standards and codes, databases, outcomes research, and the generation and management of knowledge. Also surveys current developments in instructional technology. May be open to undergraduates as HES 507 with instructor permission.

HES 708, 508 - (3) (Y) International Health Policy
Addresses the questions of what makes a good health system, how we know whether a health system is performing well, and what makes a health system fair through a comparison of the financing, delivery, and operation of health systems throughout the world. Focuses on differences both in health system performance (as measured by death, disability, morbidity, access, and patient satisfaction) and in health system inputs. May be open to undergraduates as HES 508 with instructor permission.

HES 709, 509 - (3) (Y) Health Care Economics
Prerequisite: Graduate standing in the PHS program or instructor permission.
Reviews principles of economics most relevant to analyzing changes in health care provision and applies those principles to current health care institutions and their performance, trends in health care service delivery, and methods of forecasting future trends. May be open to undergraduates as HES 509 with instructor permission.

HES 710 - (3) (Y) Health Care Policy and Management
Prerequisite: Graduate standing in the PHS program or instructor permission.
Focuses on the evolution of the American health care system from a health policy and values perspective, emphasizing the current health care system. Reviews unsuccessful legislative attempts to implement a national health program and discusses current issues surrounding the financing and organization of the delivery of health care under various economic and political frameworks. Cross-listed as GSAS 510

HES 711 - (3) (IR) Survey Research Methods
Prerequisite: Graduate standing in the PHS program or instructor permission.
Covers the theory and practice of survey research. Topics include surveys as a scientific method; sampling theory; the construction, testing, and improvement of survey instruments; interviewer training; the organization of field work; coding and data quality control; data analysis; and the preparation of survey reports. Cross-listed as SOC 511.

HES 712 - (3) (Y) Health Technology and Outcomes Evaluation
Prerequisite: HES 700, 701, and 703 or instructor permission.
Introduces students to the techniques needed for the evaluation of health outcomes from
the perspectives of the patient, the physician, the health care provider, and society. Presents measurement and evaluation of survival, functional status, quality of life, and health values. Evaluates the efficacy, effectiveness, and cost-effectiveness of devices, interventions, and processes of care.

HES 718 - (1) (Y)
The Practice of Public Health
Prerequisite: Graduate standing in the PHS program.
Lectures by guest speakers in the field of public health will help M.P.H. students learn about opportunities in the field and prepare for their own field placement. Speakers will vary depending on availability and topical issues in public health.

HES 719 - (1) (Y)
The Practice of Health Evaluation Sciences
Prerequisite: Graduate standing in the PHS program.
Lectures by guest speakers in the field of health evaluation sciences that will help the masters-level student learn about opportunities in the field and prepare for his or her own research. Speakers will vary depending on availability and topical issues in the field.

HES 720, 520 - (3) (Y)
U.S. Healthcare: Policy, Organization, and Administration
Prerequisite: HES 709, 710, GSAS 510, or acceptable substitute in health policy, economics, or financing, or instructor permission.
Examines the U.S. health care system from health policy, health systems, and health administration perspectives, with an emphasis on current challenges facing the financing, administration, and delivery of health services. Using a case-based method, the course will employ lecture, discussion, and student-led group projects that encourage analysis of real-world scenarios in today's complex health and medical environments. May be open to undergraduates as HES 520 with instructor permission.

HES 725, 525 - (3) (Y)
Public Health Ethics: Historical and Contemporary Perspectives
This interdisciplinary seminar focuses on the ethical dimensions of the choices societies and individuals make when addressing threats to and responsibilities for the public's health. A range of philosophical theories and contemporary positions are examined to explore the complex concepts of "public" and "health." Investigated are the impact of various understandings of the public, not only as a numerical population that can be defined and measured, but also as a political group that operates under legally defined obligations and relationships, and as a "communal" public with diverse cultural and moral beliefs. The various methods and content of public health ethics, including utilitarian perspectives and the role of the Code of Ethics for public health professionals are also examined. May be open to undergraduates as HES 525 with instructor permission.

HES 731 - (3) (Y)
Clinical Trials Methodology
Prerequisite: HES 700 or equivalent.
Covers the design and analysis of Phase I-III clinical trials. Topics include choice of study population and endpoints, choice of study design and sample size estimation, randomization and masking, patient recruitment, data collection and quality control, data monitoring committees, data analysis, and the interpretation and reporting of results. Cross-listed as STAT 531.

HES 735 - (3) (Y)
Health Behavior and Health Promotion
Prerequisite: Instructor permission.
This core M.P.H. course is focused on the assessment of individuals, families, and communities in health and illness. Selected models derived from health promotion/disease prevention are integrated as a basis for developing an understanding of the specific content and process of assessment of individuals, families, and communities. In addition, research foundations of health promotion and disease prevention across the life span are examined. Emphasis is placed on the use of existing knowledge to guide advanced nursing and public health practice in culturally-competent interventions for the promotion of health. Cross-listed as GNUR 702.

HES 738 - (3) (Y)
Environmental Health: Principles and Practices
Prerequisite: Instructor permission.
Interdisciplinary approach to understanding, assessing, and controlling environmental factors that impact public health. Practical examples are used to help public health professionals understand how epidemiology, health surveillance, and exposure surveillance can be used to determine the potential for health problems that result from various environmental factors, and how monitoring and control techniques can reduce the impact of the environment on human health.

HES 740 - (IR)
Applied Informatics in Medicine and Health
Prerequisite: HES 717 or equivalent.
Uses a case-based approach to analyze and discuss informatics techniques and tools as they apply to real-world challenges in the modern health care arena. Student participation and presentations required.

HES 745 - (4) (Y)
Database Design and Implementation
Introduces the basic principles of database design, focusing on databases that support clinical practice and/or investigation. Topics include an introduction to basic database types, DBMS functionality, modeling approaches (with a focus on E-R modeling), normalization, using SQL, and an overview of available DBMSs and design tools. Course methods include a mix of lecture format, small-group discussion, and hands-on activities. A laboratory component will facilitate greater hands-on experience in data management with widely available software tools.

HES 747, 547 - (3) (Y)
Quality Management in Health Care Organization
Prerequisite: Instructor permission; understanding of basic statistics.
Provides an understanding of the history, theory, principles, major components, and techniques for quality management, including Six Sigma, in the health care industry. Exposes students to techniques to lead and facilitate effective teams. Also provides practical applications of tools and techniques for quality improvement, such as control charting, statistical process control (SPC), and the use of benchmarking and report cards. May be open to undergraduates as HES 547 with instructor permission.

HES 751 - (3) (Y)
Applied Biostatistics
Prerequisite: HES 700.
An illustration of the indications, limitations, assumptions, and appropriate applications of analytical methods in a variety of biomedical settings. Students will learn how to determine which analytic technique(s) would be best suited for a variety of translational and clinical research, evaluation, and policy study designs.

HES 786 - (3) (IR)
Special Topics in Public Health
Examination of topical issues and current problems and research in various areas of public health.

HES 795 - (3) (Y)
Statistical Bioinformatics in Medicine
Provides an introduction to bioinformatics and discusses important topics in computational biology in medicine, particularly based on modern statistical computing approaches. Reviews state-of-the-art high-throughput biotechnologies, their applications in medicine, and analysis techniques. Requires active student participation in various discussions on the current topics in biotechnology and bioinformatics.

HES 888 - (1-12) (S)
Practicum
HES 889, 890 - (1-10) (S)
M.P.H. Field Placement
HES 891, 892 - (1-12) (Y)
Topical Research (Thesis only)
HES 893, 894 - (1-10) (Y)
M.P.H. Culminating Experience
HES 895 - (3) (S)
Supervised Independent Research I
HES 896 - (3) (S)
Supervised Clinical Research I
HES 897, 898 - (1-12) (S)
Non-Topical Research
The department offers graduate programs leading to the M.A. and Ph.D. degrees. The M.A. program allows students to prepare for more advanced work, pursue a personal interest, explore vocational options, or gain certification for secondary school instruction in religious studies. The Ph.D. program trains teachers and research scholars for the academic study of religion in universities, liberal arts colleges, and community colleges.

**Degree Requirements**

**Master of Arts** The M.A. in Religious Studies, which may be elected either as preparation for more advanced study or as a terminal degree, requires:

1. either: the successful completion of 24 credits of course work, of which at least 9 credits are taken in a single religious tradition or cultural area and at least 6 are taken in courses with a strong emphasis on method; the preparation and successful defense of a thesis that exhibits competence in the area of specialization, skill in a given method of study, and an ability to employ resources in the relevant foreign language(s);

2. or: the successful completion of 30 credits of course work, of which at least 12 credits are taken in a single religious tradition or cultural area and at least 6 are taken in courses with a strong emphasis on method; and satisfactory performance in a comprehensive examination based on a reading list approved by the relevant field committee. The choice between these options is determined in consultation with faculty advisors, and with a view to the student’s objective in graduate study. (When M.A./Ph.D. program students successfully complete their comprehensive doctoral examinations, they have also completed the master’s examination requirement and may elect to receive the M.A. degree);

3. and: a reading knowledge of either French of German demonstrated by examination (though another language may be substituted under appropriate circumstances and with the approval of the Committee on Graduate Studies.) Within these general requirements, the M.A. Program remains flexible and can be closely tailored to the interests of the individual student. Normally the M.A. program can be completed in three semesters, but very rarely in fewer.

**Doctor of Philosophy** The following requirements pertain generally to all Ph.D. programs in the department: students admitted to the M.A./Ph.D. (i.e., students without prior graduate work in religious studies or related fields) must complete a minimum of 54 credits in courses at the 500 level and above, plus 18 credits in other courses (may be non-topical research) for a total of 72 credits.

Students admitted directly to the Ph.D. program (i.e., who already hold a graduate degree in religious studies, such as the M.A., M.Div., or some equivalent) may petition the Graduate Committee for advanced standing at the end of their first year of residence and be allowed to waive up to 24 credits of the course work requirement. These students need 30 credits of course work plus 18 other credits (e.g., non-topical research) for a total of 48 credits. All doctoral students must spend at least one academic session in full-time study.

Students must demonstrate, by examination, a reading knowledge of both French and German, although other languages may also be required. Another language may be substituted if it is appropriate to the field of specialization. Language competencies must be certified before a student may proceed to comprehensive examinations.

Students must successfully complete a series of comprehensive examinations in the field of specialization. Within six months of the completion of these examinations, students must submit and defend, before the relevant faculty committee, a dissertation proposal.

When the dissertation proposal is approved, students proceed to the writing of a dissertation that demonstrates a high level of research skills, sophistication of method, originality of insight, and specialized knowledge. Dissertations must be defended in oral examination before the faculty.

The time required for successful completion of doctoral studies varies. Those programs that require substantial language training and/or periods of fieldwork inevitably take longer to complete. Students should anticipate a period of three to six years of study.

**Areas of Specialization** The Department offers six major areas of specialization in doctoral studies. They are Historical Studies; Theology, Ethics, and Culture; History of Religions; Islamic Studies; Bioethics; and Scripture, Interpretation and Practice

**Course Descriptions**

**Buddhism**

**RELB 500, 501 - (4) (IR)**

**Literary and Spoken Tibetan I, II**

Introduces the philosophical and spiritual texts of Tibet. Includes grammar, basic religious terminology, and structure.

**RELB 502 - (3) (O)**

**Tibetan Perspectives on Tantra**

Tibetan presentations of the distinctive features of Tantric Buddhism.

**RELB 525 - (3) (O)**

**Seminar in Japanese Buddhism**

Prerequisite: RELG 213 or 316, or instructor permission.

Examines selected topics in the major schools of Japanese Buddhism: Tendai, Shingon, Pure Land, Nichiren and Zen.

**RELB 526 - (3) (IR)**

**Seminar in Tibetan Buddhism II**

The theory and practice of Tibetan Buddhism.

**RELB 527 - (3) (O)**

**Seminar in Chinese Buddhism**

Selected doctrinal and historical issues in Chinese Buddhism.

**RELB 535, 536 - (4) (IR)**

**Literary and Spoken Tibetan III, IV**

Intermediate course in the philosophical and spiritual language of Tibet, past and present.

**RELB 539 - (3) (IR)**

**Tibetan Buddhist Tantra - Dzokchen**

Studies the Dzokchen tradition of Tibetan Buddhist Tantra, focusing on its philosophical and contemplative systems, and its historical and social contexts.

**RELB 543, 544 - (3) (SI)**

**Sanskrit Religious Texts**

Prerequisite: SANS 501, 502, or equivalent and instructor permission.

Readings in Sanskrit religious and philosophical works, including their syntax, meaning, and translation.

**RELB 546 - (3) (IR)**

**Seminar in Mahayana Buddhism**

Studies the Middle Way School of Madhyamika, including Nagarjuna’s reasoning and its intent and place in the spiritual path.

**RELB 547, 548 - (4) (IR)**

**Literary and Spoken Tibetan V, VI**

Prerequisite: RELB 500, 501, 535, 536, or equivalent.

Advanced study in the philosophical and spiritual language of Tibet, past and present.

**RELB 549 - (3) (IR)**

**Religious History of Tibet**

Surveys political, social, religious, and intellectual issues in Tibetan history from the fifth to fifteenth centuries, emphasizing the formation of the classical categories, practices, and ideals of Tibetan Buddhism.

**RELB 555 - (3) (IR)**

**Buddhist Philosophy**

Prerequisite: RELB 249 or equivalent. Advanced study of the stages and contents of insight according to the Pali and Sanskrit Buddhist traditions using such works as the Sarti-pathanamutra, Visuddhiimagga, Vimuttimagga, and Abhidharmakosha (in translation).

**RELB 560 - (3) (SI)**

**Elementary Pali**

Prerequisite: SANS 501, 502, or equivalent. Studies Pali religious and philosophical works, including grammar and translation.

**RELB 561 - (1-3) (IR)**

**Buddhist Hybrid Sanskrit**

Prerequisite: SANS 501, 502 or equivalent. Studies Buddhist Hybrid Sanskrit works and their grammar and translation.
RELB 566 - (3) (E)
Seminar on Indian Buddhism
Studies the techniques and presuppositions involved in the methods used to study Buddhism, including textual, historical, philosophical, and social scientific methods.

RELB 580, 581 - (3) (Y)
Literary and Spoken Tibetan VII, VIII
Prerequisite: RELB 500, 501, 535, 536, 547, 548 or equivalent.
Examines the Yogachara-Svatantrika system as presented in Jang-kya’s Presentation of Tenets, oral debate, and exercises in spoken Tibetan.

RELB 587, 588 - (2) (Y)
Colloquial Tibetan VII, VIII
Prerequisite: for 587, RELB 586. Advanced-level study of colloquial Tibetan.

RELB 591 - (3) (E)
Seminar in Chinese Buddhism
Studies the major schools of Chinese Buddhism: T’ien-t’ai, Hua-yen, Pure Land, and Ch’an.

RELB 700, 701 - (3) (Y)
Readings in Japanese Buddhist Studies I, II
Prerequisite: JAPN 102 or instructor permission.
Introduction to research materials in Japanese.

RELB 702, 703 - (3) (Y)
Readings in Chinese Buddhist Texts I, II
Instruction in the reading and interpretation of Chinese Buddhist texts and the use of reference tools such as Chinese language dictionaries, bibliographies, encyclopedias, and indices.

RELB 823 - (3) (S)
Advanced Literary and Spoken Tibetan
Examines selected topics and techniques of Tibetan education.

RELB 831, 832 - (1-3) (SI)
Advanced Sanskrit/Pali I, II
Advanced readings in poetry, psychology, or philosophy.

RELC 504 - (3) (SI)
The Apocalyptic Tradition
The tradition of apocalyptic thought, as expressed in ancient Jewish and Christian literature and in selected contemporary literature. Emphasizes liturgical forms and features, historical and theological presuppositions, and primary themes.

RELC 510 - (3) (Y)
Natural Law in Judaism and Christianity
Prerequisite: Courses in religious thought and/or philosophy. Studies the concept of natural law in Jewish and Christian theology and how these respective religious traditions dealt with a concept that claims that all morality is not the direct result of specific religious prescription.

RELC 511 - (3) (IR)
Phenomenology and Christology
A systematic exposition of the phenomenon of selfhood on the basis of traditional materials from Christology and recent investigations in phenomenology.

RELC 512 - (3) (IR)
Development of Nineteenth- and Twentieth-Century Catholic Liberalism
Analyzes and interprets major currents in liberal Catholic thought in the 19th and 20th centuries, from the Thomistic revival (1878), through the condemnation of Modernism (1907), to the emergency of the “New Theology” with such theologians as Karl Rahner, Yves Congar, and Henri deLubac.

RELC 513 - (3) (IR)
Being and God
A constructive treatment of questions related to the possibility of the existence of being and God or of the being of God.

RELC 519 - (3) (O)
Theology in the Nineteenth Century
Analysis and interpretation of the theology of major thinkers in the 19th century, with special attention to Kant, Hegel, and Schleiermacher.

RELC 520 - (3) (E)
Contemporary Theology
A survey, analysis, and interpretation of major developments in philosophical theology in the 20th century, beginning with dialectical theology in the 1920s.

RELC 530 - (3) (IR)
Early Christianity and Classical Judaism
Studies early Christian writings directed to Judaism; the role of Judaism in shaping the Christian intellectual tradition; and Christian interpretation of Jewish scripture.

RELC 531 - (3) (IR)
Early Christianity and Graeco-Roman Culture
Pagan criticism of Christianity and the response of Christian apologists; and Christianity and the Greek philosophical traditions, especially Stoicism and Platonism.

RELC 534 - (3) (E)
Seminar in Early Christian Thought
Prerequisite: RELC 205 or instructor permission.
Intensive consideration of a selected issue, movement, or figure in Christian thought of the second through the fifth centuries.

RELC 544 - (3) (Y)
Sociology of Religion
Examines selected topics and techniques of sociology of religion.

RELC 580 - (3) (E)
Advanced Exegesis of the New Testament I
Prerequisite: Intermediate knowledge of Hellenistic Greek. Reading and interpretation of the Greek text of one of the Gospels.

RELC 581 - (3) (O)
Advanced Exegesis of the New Testament II
Prerequisite: Intermediate knowledge of Hellenistic Greek. Reading and interpretation of the Greek text of one or more of the epistles.

RELC 583 - (3) (E)
Love and Justice in Christian Ethics
Examines various conceptions of love and justice in selected Protestant and Catholic literature mainly from the last fifty years.

RELC 711 - (3) (IR)
Seminar in Roman Catholic Moral Theology
Reviews the Catholic tradition in moral theology, emphasizing the influence of historical consciousness on post-Vatican II ethics in natural law, the use of scripture, social ethics, and issues of authority.

RELC 724 - (3) (SI)
Popular Religion, 1300-1700
Analyzes various approaches to the study of western Christianity, focusing on the experience and practice of religion by the laity.
Cross-listed as HIEU 724.

RELC 815 - (3) (IR)
Patristic Greek
Readings of Greek fathers such as John Chrysostom and Gregory of Nazianzus, with emphasis on grammar, syntax and rhetoric. An intermediate to advanced level course.

RELC 841 - (3) (IR)
Seminar on American Religious Thought I: Edwards to Emerson
Prerequisite: Instructor permission. A historical and theological examination of seminal figures in the development of American religious thought from the Enlightenment through the “American Renaissance.”

RELC 842 - (3) (IR)
Seminar on American Religious Thought II: Liberalism Through Neo-Orthodoxy
A historical and theological examination of the work of major religious thinkers in America from 1860 to 1960.

RELC 844 - (3) (Y)
Seminar in Reformation Studies
Intensive study of a selected movement, issue, or figure in the 16th century.

RELC 846 - (3) (SI)
Development of Catholic Social and Political Thought
Studies papal encyclicals since Renum Novarum (1891), and American Catholic attitudes toward organized labor and social action.
RELG 847 - (3) (SI)
American Catholic Approaches to Religious Liberty
Religious Liberty was the distinctive contribution of American Catholicism to the Second Vatican Council. Traces the development of this doctrine from the 17th to the 20th century in the United States.

RELG 889 - (3) (E)
Seminar in New Testament Theology
Considers the nature and scope of New Testament theology and of one central theme, such as Christology.

RELG 890 - (3) (O)
Topics in New Testament Studies

RELG 892 - (3) (Y)
Seminar in Early Christianity
Studies selected topics in early Christian history and thought. Topic varies annually.

General

RELG 503 - (3) (SI)
Readings in Chinese Religion
Examines selected readings from a specific text, figure, or theme. Readings emphasize possible structures of religious language and their translation.

RELG 506 - (3) (IR)
Interpretation of Myth
An interdisciplinary study of myth, focusing on structuralist, hermeneutical, and history of religion methodologies.

RELG 507 - (3) (O)
Interpretation Theory
Analyzes existentialist, phenomenological, structuralist, literary, historical, and psychological approaches to the interpretation of texts, especially narrative religious texts; and the interactions of language, history, and understanding.

RELG 508 - (3) (IR)
Seminar on Religion and American Culture I
Prerequisite: A course in either American history or American religious history. Open to upper-level undergraduates.

RELG 514 - (3) (SI)
Seminar on a Major Religious Thinker
Studies the relationship between philosophical and religious thought as seen in a selected philosopher or theologian.

RELG 515 - (3) (Y)
Issues in Religious Ethics
Studies selected issues such as mysticism and morality, conscience, natural law, nonviolence, and methodology in religious ethics.

RELG 517 - (3) (Y)
Seminar in History of Religions
Introduces the basic thinkers in the field of history of religions and to fundamental problems in the study of religious sociology, mythology, and ritual.

RELG 518 - (3) (O)
Seminar in Philosophical Theology
Studies ideas of God in Western thought from Plato through Descartes.

RELG 524 - (3) (SI)
Problems in Philosophy of Religion
Examines classic and contemporary discussions of problems in the philosophy of religion.

RELG 541 - (3) (O)
Seminar in Social and Political Thought
An examination of the social and political thought of selected religious thinkers.

RELG 563 - (3) (S)
Theology and Literature
Examines several major contemporary approaches to the question of the justification of religious belief, involving issues of relativism and kinds of rationality.

RELG 570 - (3) (Y)
Myth and Modern Drama
Studies the religious and narrative elements of Greek, biblical, and other mythic traditions as they exist in the works of modern dramatists.

RELG 714 - (1) (IR)
Comparative Indo-European Mythology
Studies structural parallels between myths of the Indo-European language family, based on the methods pioneered by Georges Dumezil.

RELG 720 - (3) (SI)
Wittgenstein and Philosophy of Religion
Studies several major works of Ludwig Wittgenstein as they bear on the problems raised by the philosophical study of religion.

RELG 721 - (3) (SI)
Kant and Philosophy of Religion
Examines Kant’s Critique of Practical Reason and Religion Within the Limits of Reason Alone, with special attention to Kant’s view of the relation between the theoretical and practical employments of reason, and the implications for theistic belief.

RELG 722 - (3) (SI)
Rationality, Justification, and Religious Belief
Examines several major contemporary approaches to the question of the justification of religious belief.

RELG 725 - (3) (IR)
Kierkegaard and Philosophy of Religion
Examines Søren Kierkegaard’s contribution to the philosophy of religion through his major philosophical works, Philosophical Fragments and Concluding Unscientific Postscript. Their bearing on the philosophical study of religion is highlighted by a prefatory examination of some works by Hume or Kant which provide useful contrast.

RELG 800 - (3) (E)
Negativity and Religious Imagination
Examines the ways in which imaginative literature, theological reflection, and hermeneutical inquiry interpret aspects of negativity in human experience and understanding.
RELG 808 - (2) (Y) Principles and Practice of Bioethics
Services
Reviews the underlying principles, existing models, and literature in the practice of ethics consultation in health care.

RELG 809 - (3) (Y) Proseminar on Current Controversies in Bioethics
Studies controversies regarding research with the embryo and fetus, issues in AIDS prevention, diagnosis and treatment, and requests for assistance with suicide or euthanasia.

RELG 810 - (3) (Y) Proseminar in Clinical Ethics
Explores ethical perspectives and clinical decisions, including situation ethics, casuistry, principlism, and feminist perspectives.

RELG 812, 813 - (1-3) (Y) Figures and Traditions in Philosophical and Religious Ethics
A two-semester course that introduces the basic ethical works and theories of central figures in the Western tradition: Socrates, Plato, Aristotle, Augustine, Aquinas, Hume, Kant, Hegel, Kierkegaard, Bentham, Mill, Buber, Dewey, and Rawls.

RELG 814 - (3) (Y) History of Bioethics via the Great Cases
Topics include Tuskegee, Jewish Hospital for Chronic Diseases, Philadelphia Head-Injury Studies, Quinlan and Cruzan, Jehovah’s Witness, Bouvia, Quill and Freund, Baby Jane Doe, Baby Theresa, Angela Carder, Wangjie, the Oregon Plan, etc. Concentrates on analysis of cases and turning points in the field of bioethics.

RELG 823 - (3) (E) Comparative Religious Ethics
Examines the theoretical and methodological questions underlying comparative studies of religious ethics. Tests several methods in relation to materials from different religious traditions.

RELG 824 - (3) (O) Contemporary Theological Ethics
Prerequisite: instructor permission. Examines trends and controversies in contemporary theological ethics.

RELG 840 - (3) (IR) Historiography Seminar in American Religion
Prerequisite: instructor permission. Examines current historiographical issues in the interpretation of religion in American history.

RELG 855 - (3) (SI) Seminar in the Thought of Martin Heidegger
Examines the works of Heidegger (especially Being and Time) and their contribution to contemporary theology.

Hinduism
RELH 553 - (3) (E) Hindu Philosophical Systems
Prerequisite: RELH 209, RELH 211, or instructor permission.

RELH 554 - (3) (IR) Hindu Ethics
Examines the works of Heidegger, especially Being and Time. Examines the practice of ethics and moral reasoning in Hindu thought and practice.

RELH 589 - (3) (IR) Vedic Hinduism
Investigates the interplay of myth, ritual, and society in ancient India, taking the Vedic textual tradition and the theories of Jan Heesterman as its dual starting point.

RELH 717 - (3) (SI) Hindu Cosmology
An intensive examination of Hindu concepts of space and time.

Islam
RELJ 540 - (3) (Y) Seminar in Islamic Theology
Prerequisite: RELI 207 or instructor permission.

RELJ 541 - (3) (IR) Islamic Theology: The Shi’ite Creed
Studies Twelve Shi’ite religious thought in comparison with other Shi’ite and Sunni sects.

RELJ 542 - (3) (IR) War and Peace in Islam: A Comparative Ethics Approach
Studies Islamic notions of holy war and peace as they relate to statecraft and political authority in Muslim history.

RELJ 710 - (3) (SI) Islamic Religious Law
Prerequisite: RELI 207 or RELC 530.

RELJ 860 - (3) (SI) Seminar in Shi’ite Theology
Prerequisite: RELI 540, two years of Persian or Arabic. An in-depth study of Shi’ite Islamic Theology from its origin through the 14th century.

Judaism
RELJ 505 - (3) (IR) Judaism in Antiquity
Description and analysis of representative systems of Judaic religion which flourished in Palestine, Egypt, and Mesopotamia from 500 B.C.E. to 200 A.D.

RELJ 522 - (3) (IR) The Shaping of the Rabbinic Tradition
Seminar investigating specific aspects of the pre-modern development of Rabbinic Judaism, e.g., “the holy man, mysticism and society, canon and exegesis, and law as theology.”

RELJ 523 - (3) (O) Modern Jewish Thought: From Phenomenology to Scripture
Studies postmodern trajectories in the Jewish philosophies of Rosenzweig and Levinas, with comparative readings in Derrida and Ricoeur, and supplementary studies of Descartes, Kant, Husserl, Cohen, Buber, and Lyotard.

RELJ 528 - (3) (O) Seminar in Israelite Religion
Advanced study in a selected aspect of the religion of ancient Israel.

RELJ 529 - (3) (SI) Seminar in Hebrew Bible
In-depth study of a selected corpus of literature, specific book of the Hebrew Bible, or pervasive theme.

RELJ 594 - (3) (SI) Judaism and Kantian Philosophy
Prerequisite: Courses in philosophy or Jewish thought, or instructor permission; reading knowledge of German helpful.

RELJ 888 - (3) (SI) Biblical and Jewish Palestinian Aramaic
Introduces the Aramaic language, intended especially for New Testament graduate students. Emphasizes mastery of the grammar and syntax of Official or Imperial Aramaic and especially Middle Aramaic (second century B.C.E. to second century C.E.).

Special Topics
RELS 895 - (3-9) (S) Research
Systematic readings in a selected topic under detailed supervision.

RELS 896 - (3-9) (S) Research
Research on problems leading to a master’s thesis.

RELS 897 - (3-12) (S) Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

RELS 898 - (3-12) (S) Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

RELS 899 - (3-12) (S) Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.
The Center for Russian and East European Studies serves as a resource for research and scholarship in the field of Russian and East European studies. The center does not offer courses of its own, but a Certificate in Russian Studies is awarded graduate students who obtain an M.A., a Ph.D., or a professional degree in a department or professional school and meet certain other requirements. An interdisciplinary graduate degree in Russian studies is offered under the auspices of the Slavic department; for further details see the entry on the Slavic department in this Record.

Students concentrating in Russian or East European studies, regardless of department, are eligible for summer language and year-long fellowships (The Foreign Language Area Studies, or FLAS). Approximately seven such fellowships are awarded annually.

Requirements
Certificate in Russian and East European Studies A student in one of the participating graduate departments, e.g., art, economics, government and foreign affairs, history, music, Slavic languages and literatures, etc., or in the participating professional schools, such as Law, Medicine, Darden, Education, etc., can broaden his or her knowledge of the Russian and East European area by applying for the Certificate in Russian and East European Studies in addition to the M.A., Ph.D., or professional degree in his or her own home department or school. As detailed below, the work for a certificate requires the student to complete a certain number of non-language courses in the Russian and East European field and demonstrate proficiency in a language of Russia or Eastern Europe.

Requirements for the graduate certificate are as follows:

1. Language Competency Competency in a language of Eastern Europe (including languages other than Russian) is to be demonstrated by the completion of one of the following four specific arrangements approved by the center in cooperation with the student's home department and the Department of Slavic Languages and Literatures: (a) completion of RUSS 501 with a grade no lower than B; (b) passing the ETS Graduate School Foreign Language Test with a minimum score of 540; (c) passing the Slavic department's Russian Proficiency Examination; or (d) passing an examination devised by the student's home department in cooperation with the center and the Department of Slavic Languages and Literatures.

2. Broad Area Concentration Successful completion of four non-language courses in Russian and East European studies with a grade average no lower than B. Students in the Department of Slavic Languages and Literatures must take these courses outside their home department.

3. Thesis Successful completion of a master's thesis, Ph.D. dissertation, or a significant and high quality seminar paper on a theme closely related to Russian and East European studies.

This program is administered by the Center for Russian and East European Studies which is directed by Allen Lynch of the Department of Government and Foreign Affairs.

Supporting Courses
Note: Graduate courses related to Russian and East European studies are listed below. Refer to the appropriate academic department for course descriptions and prerequisites.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 522</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Byzantine Art</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 822</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Art in the Age of Justinian</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH 921</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Seminar in Byzantine Art</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDFL 765</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Comparative Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFCP 521</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Soviet and Post-Soviet Politics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFCP 523</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Politics of Eastern Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFCP 821</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Topics in the Government and Politics of the USSR and Eastern Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 522</td>
<td>3 (E)</td>
<td></td>
</tr>
<tr>
<td>Conflict Management in International Law and Organization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 525</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Politics of Economic Reform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 542</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Contemporary U.S. Foreign Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 555</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Russian/Soviet Foreign Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 571</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>China in World Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 741</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>U.S. Foreign Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 756</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Russian and American Relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 808</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Problems of Force in International Relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 831</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>International Relations Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 841</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Topics in U.S. Foreign Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 845</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>American Foreign Policy: Cold War and After</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GFIR 856</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Russian and Eastern European Topics in World Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEP2 503</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Marxist Theories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 526</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russian History to 1700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 527</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>The Age of Russian Absolutism, 1613-1855</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 530</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>National Ethnicity and Race in Modern Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 545</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>The History of Twentieth-Century Europe, 1900-1941</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 546</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>The History of Twentieth-Century Europe Since 1941</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 561</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>The Age of Reform and Revolution in Russia, 1855-1917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 562</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russia Since 1917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 564</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russian and Soviet Diplomatic History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 566</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Nineteenth-Century Russian Intellectual History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 567</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russian Social History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 740</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Nineteenth-Century Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 745</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Twentieth-Century Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 761</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russia 1894-1917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 766</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russian Social and Cultural History, 1815 to the Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 825</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>History of Russian Empire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 840</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Nineteenth-Century European History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 845</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Twentieth-Century Europe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 846</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Twentieth-Century Europe and Russia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 864, 865</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Soviet Domestic and Foreign Policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIEU 867</td>
<td>3 (IR)</td>
<td></td>
</tr>
<tr>
<td>Russian History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAWS 637</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>Constitutionalism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAWS 608</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>National Security Law</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAWS 601</td>
<td>3 (Y)</td>
<td></td>
</tr>
<tr>
<td>National Security Law</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
and Ph.D. levels, and a program in Contemporary Russian Studies at the M.A. level. The Slavic Languages and Literatures degree allows students to specialize in either Russian literature, Slavic folklore, or Slavic linguistics (phonology and morphology) while gaining a modicum of cross-discipline competence designed to prepare them for today's job market. Students pursuing Contemporary Russian Studies take courses in history, government, language, literature, folklore, and sometimes other fields.

Degree Requirements

Master of Arts

Required of all candidates for the degree are 30 semester credits of course work at the 500 level or above, the passing of a proficiency examination in Russian, and the passing of a comprehensive examination. Students choosing the Contemporary Russian Studies option write a thesis (on which their comprehensive examination will be based), while students choosing Slavic Languages and Literatures submit a major research paper or research portfolio in lieu of a thesis. Thesis courses are normally offered during the academic year only. Details about additional requirements can be found in section 2.1 of the Slavic Department Handbook, available at www.virginia.edu/slavic/faculty_handbook.html.

Doctor of Philosophy

Candidates must receive formal permission from the department before undertaking a course of studies leading to the Ph.D. degree; those entering with an M.A. from another university must also pass a qualifying examination during the first semester. In addition to the general University requirements for the Ph.D. degree, candidates must complete no fewer than 60 credits of graduate level courses (or 30 beyond the M.A.); pass a proficiency examination in Russian; demonstrate a reading knowledge of either French or German; demonstrate a reading knowledge of a second Slavic language; pass a written and oral comprehensive examination before undertaking the dissertation; submit and defend a dissertation proposal; and complete a dissertation. Details about additional requirements are available in section 2.2 of the Slavic Department Handbook, available at www.virginia.edu/slavic/faculty_handbook.html.

Course Descriptions

Prerequisites are noted for courses in language and linguistics. Prerequisites may vary from semester to semester and are therefore made known during course enrollment. Graduate standing is ordinarily prerequisite for courses at the 500 level and above.

Russian Language and Literature

RUSS 500 - (3) (IR)

Readings in the Social Sciences

Prerequisite: RUSS 302 and instructor permission.

Based on a careful analysis of the social science texts, students are introduced to advanced topics in Russian morphology and syntax. Successful completion of the course enables students to read nineteenth- and twentieth-century Russian non-fiction with minimal difficulty.

RUSS 502 - (3) (IR)

Advanced Proficiency Russian

Prerequisite: RUSS 402.

Graduate-level translation, composition, and discussion. May be repeated for credit.

RUSS 503 - (3) (Y)

Advanced Russian

Prerequisite: RUSS 201, 202, and instructor permission.

A thorough review of Russian grammar.

RUSS 504 - (3) (E)

Advanced Russian II

Prerequisite: RUSS 503 strongly recommended.

Development of advanced proficiency in the four skills: reading, writing, speaking and listening.

RUSS 505 - (1) (S)

Advanced Conversation

Prerequisite: RUSS 302.

Two hours of conversation practice per week. May be repeated for credit.

RUSS 521 - (3) (O)

The Structure of Modern Russian: Phonology and Morphology

Prerequisite: LNGS 325, RUSS 202, and instructor permission.

Studies linguistic approaches to the phonology and morphology of standard Russian.

RUSS 522 - (3) (E)

The Structure of Modern Russian: Syntax and Semantics

Prerequisite: RUSS 202 and instructor permission; LNGS 325 strongly recommended.

Studies linguistic approaches to the syntax and semantics of contemporary standard Russian.

RUSS 523 - (3) (IR)

History of the Russian Literary Language

Prerequisite: RUSS 202 and instructor permission.

History of literary (standard) Russian from its formation to the present day. Includes problems of vocabulary, syntax, and stylistics.

RUSS 524 - (3) (IR)

History of the Russian Language

Prerequisite: RUSS 202, LNGS 325.

Diachronic linguistic analysis of the Russian language.

RUSS 530 - (3) (Y)

Russian Satire

Prerequisite: RUSS 202 or the equivalent.

Trains in the translation of Russian newspapers and periodicals.

RUSS 551 - (3) (SI)

Russian Drama and Theatre

Studies works from Fonvizin to Shvarts with emphasis on the major plays of Gogol, Chekhov, and Gorky. Includes production theories of Stanislavsky, Meyerhold, and other prominent Russian directors.

RUSS 552 - (3) (O)

The Golden Age of Russian Poetry

Studies works by Zhukovsky, Batiuishkov, Pushkin, Lermontov, Baratynsky, Tiutchev, and others.

RUSS 554 - (3) (E)

Age of Realism, 1851-1881

Studies the works of Russia's most celebrated writers during the middle of the 19th century. Explores the many forms that "realism" assumed in Russia at this time, and investigates how Russian writers responded to the calls of their contemporary critics to use literature to promote socially progressive ends.

RUSS 555 - (3) (IR)

The Silver Age of Russian Poetry

Studies the poetry of Blok, Akhmatova, Mandelstam, Pasternak, Tsvetaeva, and Mayakovksy. Includes symbolism, acmeism, and futurism.

RUSS 556 - (3) (E)

Russian Modernism

Examines selected works by the leading writers of the early part of the twentieth century. Explores concepts of symbolism, acmeism, and futurism. Focuses on competing conceptions of literature that evolved in the 1920s until the establishment of the hegemony of socialist realism in the 1930s. Considers works written by Russian writers living in emigration.

RUSS 557 - (3) (IR)

Russian Formalism and Structuralist Poetics

Prerequisite: Reading knowledge of French, German, or Russian suggested.

Studies the theory and practice of literary critics. Focuses on the Russian Formalists and the relationship of their theories to those of later critics in America (New Criticism) and the current European Structuralists.

RUSS 558 - (3) (O)

Contemporary Russian Literature

Studies the evolution of Russian literature from the "Thaw" period until the present. Examines how Russia's writers tried to accommodate, evade, or challenge the prevailing norms of Soviet literature during the 1960s and 1970s. Analyzes the forces shaping the development of contemporary Russian literature.
RUSS 565 - (3) (SI)
Stylistics
Prerequisite: RUSS 301, 302.
Studies syntactic, lexical, and other stylistic features of literary Russian in various contexts.

RUSS 573 - (3) (Y)
Dostoevsky and the Modern Novel
Studies the major works of Dostoevsky. Emphasizes the various critical approaches employed in the study of Dostoevsky. Open to students from other departments with no knowledge of Russian.

RUSS 575 - (3) (E)
Russian Poetry
Studies Russian poetics and selected poets from Pushkin to the present.

RUSS 585, 586 - (3) (SI)
Topics in Comparative Literature
Studies various literary themes, movements, genres in an attempt to relate Russian literature to the literatures of other countries. The course is open to students from other departments with no knowledge of Russian, and may be repeated for credit.

RUSS 591 - (3) (Y)
Selected Topics in Russian Literature
Typical topics in various years include Tolstoy, Russian literary journalism, and the mid-nineteenth century Russian novel. In some years open to students from other departments with no knowledge of Russian. May be repeated for credit.

RUSS 701 - (3) (E)
Proseminar in Russian Literature
Required of all candidates for the M.A. degree.

RUSS 702 - (3) (SI)
The Theory and Practice of Criticism
Studies the major critical theories and their applicability in the Russian context.

RUSS 729 - (3) (SI)
Medieval and 18th-Century Russian
Close reading of texts from the Kievan period to end of the 18th century.

RUSS 730 - (3) (SI)
Russian Literature of the Eighteenth Century
Studies the development of literature in the post-Petrine period. Emphasizes the works of Lomonosov, Derzhavin, and Karamzin and the interaction between Russian cultural life and that of Western Europe.

RUSS 731 - (3) (SI)
Pushkin
Close reading and analysis of major works. Emphasizes the narrative poems and lyrics.

RUSS 732 - (3) (IR)
Gogol
Close reading and analysis of the major works.

RUSS 735 - (3) (IR)
Turgenev
Study of the major works.

RUSS 736 - (3) (SI)
Tolstoy
Study of the major works.

RUSS 738 - (3) (SI)
Chekhov
Study of the major works. Analysis of Chekhov's art as a short story writer and playwright.

RUSS 773 - (3) (SI)
Graduate Seminar on Dostoevsky
Study of the major and minor works.

RUSS 785, 786 - (3) (IR)
The Russian and West European Novel: 1790-1880
Studies the formation and development of the great Russian realistic novel. Emphasizes internal processes and West European influences.

RUSS 791, 792 - (3) (SI)
Seminar in Russian Studies
Advanced work on selected topics. A recent topic was "utopian vision." May be repeated for credit.

RUSS 793 - (1-4) (Y)
Independent Study in Russian Literature
May be repeated for credit.

RUSS 821 - (3) (IR)
Advanced Structure of Russian: Phonology and Morphology
Prerequisite: LNGS 325 and instructor permission.

RUSS 822 - (3) (IR)
Advanced Structure of Russian: Syntax and Semantics
Prerequisite: LNGS 325 and instructor permission.

RUSS 895 - (3) (S)
Master’s Thesis
Research for and final preparation of M.A. thesis.

Slavic Languages and Literatures

SLAV 512 - (3) (IR)
Slavic Folklore and Oral Literature
Treats the major genres of Russian oral literature and many of the minor genres. Also covers relevant folklore theory.

SLAV 514 - (3) (IR)
Slavic Ritual
This course looks at two types of ritual and at the area of folklore called material culture, which studies objects and typically examines such things as folk housing, folk costume, tools/implements, and foodways.

SLAV 533 - (3) (IR)
Topics in West Slavic Literatures
Includes Polish, Czech, or Slovak fiction, poetry, or drama. May be repeated for credit when topics vary.

SLAV 536 - (3) (IR)
Slavic Mythology
Surveys Slavic pre-Christian and Christian beliefs and customs, emphasizing their role in folklore.

SLAV 537 - (3) (IR)
South Slavic Folklore
Surveys South Slavic ethnography and folklore, emphasizing the Bulgarians and the Serbs.

SLAV 543 - (3) (IR)
Topics in South Slavic Literatures
Includes Serbian, Croatian, Slovenian, Bulgarian, or Macedonian fiction, poetry, or drama. May be repeated for credit when topics vary.

SLAV 592 - (3) (IR)
Selected Topics in Slavic Linguistics
Prerequisite: LNGS 325 and instructor permission. May be repeated for credit.

SLAV 710 - (3) (IR)
Topics in Slavic Civilization
Includes specialized aspects of Slavic culture and society. May be repeated for credit when topics vary.

SLAV 711 - (3) (IR)
Balkan Studies
Studies Balkan languages and literatures other than Slavic, emphasizing linguistic and literary ties with the South Slavs. May be repeated for credit when topics vary.

SLAV 742 - (3) (IR)
Common Slavic
Prerequisite: LNGS 325 and instructor permission.
Studies the historical phonology and morphology of Common Slavic.

SLAV 743, 744 - (3) (O)
Old Church Slavonic
Prerequisite: RUSS 102 and instructor permission.
Studies the history and structure of Old Church Slavonic. Reading of selected texts.

SLAV 793 - (3) (IR)
Independent Study in Slavic Linguistics
Prerequisite: LNGS 325, RUSS 302, and instructor permission. May be repeated for credit.

SLAV 851 - (3) (IR)
History and Structure of the East Slavic Languages
Prerequisite: LNGS 325 and instructor permission.
The diachrony, dialectology, and synchrony.

SLAV 853 - (3) (IR)
History and Structure of the South Slavic Languages
Prerequisite: LNGS 325 and instructor permission.
The diachrony, dialectology, and synchrony.

SLAV 854 - (3) (IR)
History and Structure of the West Slavic Languages
Prerequisite: LNGS 325 and instructor permission.
The diachrony, dialectology, and synchrony.

SLAV 861, 862 - (3) (IR)
Seminar in Slavic Linguistics
Prerequisite: Instructor permission.

SLAV 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.
Course Descriptions

**SLAV 997 - (3-12) (S)**
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

**SLAV 999 - (3-12) (S)**
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

**Department of Sociology**
539 Cabell Hall
University of Virginia
P.O. Box 400766
Charlottesville, VA. 22904-4766
(434) 924-7293
www.virginia.edu/sociology

**Degree Requirements**

**Graduate Program** Students are expected to complete requirements for the M.A. degree before beginning course work toward the Ph.D. For those entering with advanced graduate standing, the department may require additional course work to make up deficiencies.

**Master of Arts** A master’s thesis is required to demonstrate the student’s ability to complete a sustained scholarly project in a professional way. Prior to the completion of coursework, each student will have a Thesis Committee of not less than two faculty members. In consultation with the Thesis Committee, students will write a research paper, developed from an already completed seminar paper or another piece of independent research, with the aim of producing a publishable article. The final version should be presented to the committee in the format of a journal article. (See ASR, AJS, Social Forces, Sociological Theory, or other scholarly journals for examples of this format. Publishable papers are generally 25-40 pages in length, including the bibliography.)

By the end of the fourth semester in the master’s program, the thesis will be submitted to the Thesis Committee for approval. The student will then present their thesis to faculty and graduate students at a Master’s Colloquium usually held at the end of the spring semester.

**Doctor of Philosophy** A candidate for the doctorate is expected to complete a minimum of 24 credits of graded course work in this department beyond the master’s level, pass two comprehensive “field exams,” and write a dissertation based on independent research. A more detailed statement of the requirements for the M.A. and Ph.D. is available on the department website: www.virginia.edu/sociology.

**Prerequisite:** Six credits of sociology or instructor permission; open to advanced undergraduates.

**Contemporary Sociological Theory**
Prerequisite: SOC 503, six credits of sociology or instructor permission; open to advanced undergraduates. Considers the nature and purpose of sociological theory. Includes a survey of the most important contemporary theories and theorists.

**Max Weber: Theoretical Considerations**
Prerequisite: Six credits of sociology or instructor permission; open to advanced undergraduates. A critical examination of Weber’s writings and his influence on social science.

**Comparative Historical Sociology**
Prerequisite: Six credits of sociology or instructor permission. This course will focus not so much on methodological as on substantive issues of macro sociological inquiry. Among the topics covered will be: the state, power, revolution, nationalism and class formation.

**Research Design and Methods**
Prerequisite: SOC 312, or graduate standing, six credits of sociology or instructor permission. Studies the steps necessary to design a research project including searching the literature, formulating the problem, deriving propositions, operationalizing concepts, constructing explanations, and testing hypotheses.

**Survey Research Methods**
Prerequisite: SOC 312 or graduate standing, six credits of sociology or health evaluation sciences, or instructor permission. Covers the theory and practice of survey research. Topics include surveys as a scientific method; applied sampling of survey populations; the construction, testing, and improvement of survey instruments; interviewer training; the organization of field work; coding and data quality control; data analysis; and the preparation of survey reports.

**Intermediate Statistics**
Prerequisite: SOC 311, graduate standing, six credits of sociology or instructor permission. Studies the social science applications of analysis of variance, correlation, and regression; and consideration of causal models.

**Prerequisite:** Six credits of sociology or instructor permission; open to advanced undergraduates.

Studies the procedures and techniques of documentary analysis, historical sociology, detached and participant observation, sociological experimentation, and action research.

**Social Stratification**
Prerequisite: SOC 503, 711 or their equivalent, or instructor permission. Studies the distribution of rewards and punishments and the resulting social inequalities in cross-cultural and historical perspective. Analyzes negative liabilities such as arrest, imprisonment, unemployment, and stigmatization, and positive assets such as education, occupation, income, and honor. Draws on the literature of both stratification and deviance/criminology. Focuses on the distributive aspects of power and the resulting social formations such as classes, and status groups.

**Sociology of Culture**
Examines the most recent theoretical and methodological developments in the sociology of culture. Examines the influence of structuralism, phenomenology, critical theory, and cultural anthropology on contemporary sociological theory and practice. Considers the ways cultural analysis can be applied to a variety of pressing empirical problems.

**Sociology of Science**
Prerequisite: SOC 512 or instructor permission. Topics include science as a major institution in modern society; interrelations of science and society; social organization of science; the scientific career (socialization and professionalization); status, roles, and characteristics of science; science policy studies as an emerging discipline; and technological assessment.

**Social Demography**
Prerequisite: Six credits of sociology or instructor permission; open to advanced undergraduates. International study of population structures, emphasizing comparison of developed and developing societies, and the way in which differing rates of population growth effect the patterns of social and economic change in these societies.

**Special Topics in Sociology**
Prerequisite: Six credits of sociology or instructor permission; open to advanced undergraduates. Topics are announced and vary each semester.

**Social Change**
Analyses the social change of entire societies and cultures with a focus on contemporary America. Includes an introduction to the classical theories of Marx and Weber, their rela-
tionship to contemporary critiques of the U.S., study of selected social movements, and an analysis of the theoretical roots and practical consequences of recent strategies of change.

**SOC 801, 802 - (3) (SI)**
*Issues in Social Theory*

**SOC 803 - (3) (S)**
*Sociological Issues*
Studies contemporary issues affecting sociology as a science, as an academic discipline, and as a profession. Frequent guest lecturers.

**SOC 811 - (3) (SI)**
*Advanced Multivariate Analysis - Discrete Outcomes*
*Prerequisite:* SOC 512 or instructor permission.
Studies techniques for cross-classified categorical data in social science. Includes logistic regression, log-linear models, latent class models, and event history analysis. Features discussions of published sociological applications. A major paper involving original research design and/or data analysis is required.

**SOC 813 - (3) (SI)**
*Advanced Multivariate Analysis - Continuous Outcomes*
*Prerequisite:* SOC 512 or instructor permission.
Studies regression-based techniques for continuous variables. Includes matrix algebra, error diagnostics, complex causal models, latent variables (LISREL) models, time-series, and panel-data analysis. Features discussion of published sociological applications. A major paper involving original research design and/or data analysis is required.

**SOC 823 - (3) (IR)**
*Deviance and Social Control*
Examines a variety of deviant behaviors in American society and sociological theories explaining societal reactions and attempts at social control. Focuses on enduring conditions such as drug addiction, alcoholism, mental illness, emphasizing historical social change as a function of contemporary ideological and larger societal issues.

**SOC 831, 832, 841, 842, 862, 872, 881, 882 - (3) (Y)**
*Selected Topics in Sociology*
Advanced graduate seminars. Offerings are given in a semester determined by faculty and student interest.

**SOC 847 - (3) (IR)**
*Sociology of Knowledge*
Studies the social foundations of knowledge, including formal systems of knowledge to the realities of everyday life. Includes classical and contemporary literature on the subject.

**SOC 848 - (3) (IR)**
*Modern Culture*

**SOC 851 - (3) (IR)**
*Sociology of Work*
Studies the division of labor, occupational classification, labor force trends, career patterns and mobility, occupational cultures and lifestyles, and the sociology of the labor market.

**SOC 852 - (3) (IR)**
*Sociology of Religious Behavior*
Classical and contemporary theories and empirical research are examined to illuminate the changing role of religious belief and religious institutions in the Western World. Emphasizes the methodological problems of studying religion.

**SOC 853 - (3) (IR)**
*Sociology of Education*
Analyzes education as a social institution and its relationship to other institutions, e.g., the economy, the stratification system, the family. Emphasizes the role of education in the status attainment process.

**SOC 854 - (3) (IR)**
*Political Sociology*
Studies the relationships between social structure and political institutions. Discusses competing theories on power structures, political participation, ideology, party affiliation, voting behavior, and social movements in the context of recent research on national and local politics in the United States.

**SOC 857 - (3) (IR)**
*Conflict Management*
Examines how people express and handle grievances. Analyzes the social conditions associated with self-help, avoidance, negotiation, mediation, adjudication, and toleration.

**SOC 861 - (3) (IR)**
*Population Analysis*
Studies the methods, theories, and principles of demographic analysis, with special applications to problems in the study of U.S. and international fertility, mortality, and migration.

**SOC 871 - (3) (IR)**
*Sociology of Organizations*
Examines formal organizations in government, industry, education, health care, religion, the arts, and voluntary associations. Considers such topics as power and authority, communication, "informal" relations, commitment, and alienation.

**SOC 897 - (3-12) (S)**
*Non-Topical Research, Preparation for Doctoral Research*
For doctoral research, taken before a dissertation director has been selected.

**SOC 999 - (3-12) (S)**
*Non-Topical Research*
For doctoral dissertation, taken under the supervision of a dissertation director.

**Department of Spanish, Italian, and Portuguese Languages and Literatures**

**Minor Requirements**

**Master of Arts in Spanish**
Thirty credits of courses at the 500 level or above, at least 12 of which must be at the 700 level or above; a comprehensive written examination; a one-hour oral examination; a thesis (normally an extended seminar paper) approved by two members of the graduate faculty. The written and oral examinations are based exclusively on the departmental M.A. reading list.

**Doctor of Philosophy in Spanish**
Official departmental permission to proceed beyond the M.A. level; a reading knowledge of two other foreign languages (or the mastery of one) pertinent to the major research area; a minimum of 54 credits of courses (24 beyond the M.A.) at the 700 level or above; a written and oral comprehensive examination; an acceptable dissertation; an oral defense examination on the field of the dissertation. The guide for the written and oral exams will be the departmental Ph.D. reading list.

**Permit to Proceed to the Ph.D. in Spanish**
After completion of the M.A. requirements and acceptance into the Ph.D. program, all students in their first year of Ph.D. course work will be evaluated by the department before permission to proceed is granted.

**Teaching Requirement for Spanish**
Because this department considers language teaching an integral part of its graduate degree program, and in order that our graduate students may fully develop their teaching abilities at several levels under the close supervision of the Spanish Language Coordinator and the course heads, the department requires that graduate students serve as teaching assistants. Exceptions may be made for part-time and non-resident students; exceptions in other cases must be approved by the graduate advisor.

**Master of Arts in Italian**
Twenty-seven credits of courses, including ITAL 710 (Stilistica) or 720 (Critica); at least two 700-level and two 800-level courses, and at least two
ITAL 750 - (3) (SI)
Renaissance Italian Literature
A thorough survey of Humanistic culture and literature; Petrarchism; Machiavelli and surroundings; and the birth of epic (Ariosto and Tasso).

ITAL 756 - (3) (SI)
Trecento II
Topics include Petrarch and Boccaccio; extensive and intensive reading of the canzoniere and of the Decameron, together with lesser works of the masters.

ITAL 758 - (3) (IR)
Pen and Brush: Literary Culture and Artists of the Renaissance
Prerequisite: instructor permission.
The treatment of art and artists in works by Dante, Petrarch, and Boccaccio, and on writings of artist-poets, among them Giorgio Vasari, Michelangelo, Benevenuto Cellini, and Bronzino. Course includes considerations of artistic works.

ITAL 759 - (3) (SI)
Quattro-Cinquecento
A thorough survey of Humanistic culture and literature; Petrarchism; Machiavelli and surroundings; and the birth of epic (Ariosto and Tasso).

ITAL 760 - (3) (SI)
Sci-Settecento
Studies Manierismo in poetry and prose; the birth of Italian theater; and major authors of the Enlightenment (Parini and Alfieri).

ITAL 780 - (3) (SI)
Ottocento
Studies the authors, works, and literary movements of the second half of the nineteenth-century, including Verga and verismo.

ITAL 790 - (3) (SI)
Novecento
Studies twentieth-century prose, poetry, and theater, from Svevo to the Avant-garde writers of the 60s; present-day trends.

SPAN 527 - (3) (Y)
Spanish Civilization and Culture
Studies the non-literary achievements of Spain from pre-Roman times to the present. Includes a survey of the socio-political history, the art, architecture, music, philosophy, and folklore of Spain, defining the essential characteristics of Spanish civilization.

SPAN 528 - (3) (Y)
Latin American Civilization and Culture
Studies the non-literary cultural achievements of Latin America. Surveys the socio-political history, the art, architecture, music, philosophy, social structure and “popular culture” of Latin America, defining the essential characteristics of Latin-American civilization.

SPAN 530 - (3) (SI)
Hispanic Dialectology and Bilingualism
Studies the history and theory of Spanish-English bilingualism in the U.S. and its application in the field. Topics include bilingualism in Spanish America and Spain, and social, political, and educational issues raised by theories of bilingualism.

SPAN 530Z - (3) (J)
Islam in Europe: Muslim Iberia
Prerequisite: SPAN 311 or equivalent level of proficiency in Spanish.
An introduction to Islam and a cultural history of al-Andalus (Muslim Iberia) from the year 711 until the expulsion of the Moriscos—Muslims converted, often forcibly, to Christianity—from early modern Spain in 1609.

SPAN 531 - (3) (SI)
Hispanic Sociolinguistics
Studies the theoretical aspects of conversational analysis, incorporating it into the analysis of natural talk. Emphasizes the organization of conversations, the role of sociocultural background knowledge and preferred rules of politeness, and cross-cultural and cross-gender differences.

SPAN 556 - (3) (Y)
Middle Ages and Early Renaissance
Studies the major texts, authors, and literary trends of the Spanish Middle Ages and early Renaissance.

SPAN 557 - (3) (Y)
Golden Age
Studies the major texts, authors, and literary trends of the Spanish Golden Age.

SPAN 560 - (3) (O)
Enlightenment to Romanticism
Studies the major texts, authors, and literary trends of the Spanish eighteenth and early nineteenth centuries.

SPAN 565 - (3) (O)
Realism and Generation of 1808
Studies the major texts, authors, and literary trends of the second half of the Spanish nineteenth and the early twentieth centuries.

SPAN 570 - (3) (E)
Contemporary Spanish Literature
Studies the major texts, authors, and literary trends of the Spanish twentieth century.
SPAN 580 - (3) (O)
Spanish America: Colonial Period to 1800
Studies the major texts, authors, and literary trends of Spanish America up to 1800.

SPAN 582 - (3) (O)
Spanish America: From Romanticism to Modernism
Studies the major texts, authors, and literary trends of Spanish America in the nineteenth century.

SPAN 585 - (3) (E)
Spanish America: Modern Period
Studies the major texts, authors, and literary trends of Spanish America in the twentieth century.

SPAN 610 - (3) (SS)
Teaching the Authors on the Spanish AP List
Virginia teachers study the advanced placement curriculum currently taught in high schools.

SPAN 710 - (3) (SI)
Literary Theory
Studies the modern theories of literary criticism, including formalism, structuralism, semiotics, and the application of theory to major Spanish authors.

SPAN 720 - (3) (IR)
The Structure of Spanish

SPAN 721 - (3) (IR)
The Phonology of Spanish

SPAN 730 - (3) (E)
History of the Language
The development of the Spanish language from its origins.

SPAN 750 - (3) (IR)
Medieval Lyric Poetry

SPAN 751 - (3) (IR)
Medieval and Early Renaissance Epic and Prose

SPAN 752 - (3) (IR)
Medieval and Renaissance Theater

SPAN 755 - (3) (E)
Golden Age Poetry

SPAN 756, 757 - (3) (IR)
Golden Age Drama

SPAN 758 - (3) (O)
Golden Age Prose, Non-Picaresque

SPAN 759 - (3) (SI)
The Picaresque Novel

SPAN 760 - (3) (SI)
Eighteenth-Century Drama and Poetry

SPAN 761 - (3) (SI)
Romanticism

SPAN 762 - (3) (SI)
Costumbrismo

SPAN 765 - (3) (SI)
Realism and Naturalism: The Novel

SPAN 766 - (3) (IR)
Generation of 1898

SPAN 770 - (3) (SI)
Generation of 1927

SPAN 771 - (3) (SI)
Literature and the Civil War

SPAN 772 - (3) (IR)
Contemporary Theater

SPAN 773 - (3) (IR)
Post-Civil War Fiction

SPAN 774 - (3) (IR)
Modern Poetry

SPAN 780 - (3) (E)
Colonial Spanish American Literature

SPAN 781 - (3) (SI)
Spanish American Modernismo

SPAN 782 - (3) (SI)
Nineteenth-Century Spanish-American Literature

SPAN 783 - (3) (SI)
Spanish-American Poetry

SPAN 784 - (3) (IR)
Spanish-American Fiction

SPAN 785 - (3) (IR)
Themes and Genres: Poetry and Drama

SPAN 786 - (3) (IR)
Regional Literature

SPAN 787 - (3) (SI)
Short Story: Twentieth-Century Spanish America

SPAN 788 - (3) (SI)
Novel: Twentieth-Century Spanish America

SPAN 789 - (3) (SI)
Essay: Twentieth-Century Spanish America

SPAN 821 - (3) (Y)
Practicum in Teaching College Spanish
Required for new teaching assistants in Spanish. Orientation to elementary Spanish instruction and teaching at UVa.

SPAN 850, 851, 852, 853, 854 - (3) (IR)
Seminars: Middle Ages and Early Renaissance

SPAN 855, 856, 857, 858, 859 - (3) (IR)
Seminars: Golden Age

SPAN 860, 861, 862, 863, 864 - (3) (IR)
Seminars: Enlightenment to Romanticism

SPAN 865, 866, 867, 868, 869 - (3) (IR)
Seminars: Realism and the Generation of 1898

SPAN 870, 871, 872, 873, 874 - (3) (IR)
Seminars: Modern Spanish Literature

SPAN 880, 881, 882, 883, 884 - (3) (IR)
Seminars: Spanish America: Colonial Period to 1900

SPAN 885, 886, 887, 888, 889 - (3) (IR)
Seminars: Spanish America: Modern Period

SPAN 895 - (3) (S)
Guided Research
Readings and/or research in particular fields under the supervision of an instructor.

SPAN 897 - (3-12) (S)
Non-Topical Research, Preparation for Research
For master’s research, taken before a thesis director has been selected.

SPAN 898 - (3-12) (S)
Non-Topical Research
For master’s thesis, taken under the supervision of a thesis director.

SPAN 995 - (3) (S)
Guided Research
Readings and/or research in particular fields under the supervision of an instructor.

SPAN 997 - (3-12) (S)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

SPAN 999 - (3-12) (S)
Non-Topical Research
For doctoral dissertation, taken under the supervision of a dissertation director.

Department of Statistics
Kerchof Hall
University of Virginia
P.O. Box 400135
Charlottesville, VA 22904-4135
(434) 924-3222 Fax: (434) 924-3076
kwdzn@virginia.edu
www.stat.virginia.edu

Degree Requirements

Programs of Study
The Department of Statistics administers programs leading to the degrees of Master of Science and Doctor of Philosophy. These programs provide diverse opportunities for advanced study and research in all areas of applied and theoretical statistics, and practical experience in statistical consulting.

The Master of Science (M.S.) degree is completed within three semesters, though in some cases, the degree can be completed in one calendar year (two semesters and a summer session). Candidates for the M.S. degree complete course requirements covering the breadth of applied and theoretical statistics, and statistical consulting, and pass certain general examinations based on those courses.

The Doctor of Philosophy (Ph.D.) degree is normally completed within five years. Candidates for the Ph.D. degree fulfill certain course requirements and examinations beyond the M.S. degree. The fundamental addition is the Ph.D. dissertation, which presents original research performed under the supervision of a faculty member.

All full-time graduate students are required, as part of their training, to gain instructional experience by assisting with the teaching of undergraduate courses.
Master of Science Degree

Course requirements The M.S. program requires 24 units of coursework. M.S. required courses: STAT 501, STAT 512, STAT 513, HES 704 or STAT 995 and one of STAT 516, 531, or 718. The following courses will not count towards the required 24 units: STAT 971/STAT 999, STAT 512, MATH 311/509, MATH 312/510. STAT 501 may be taken S/NS; all other courses must be taken for a grade.

(For detailed course information, see statistical course offerings). Consulting (STAT 995) cannot be taken in the first semester of the M.S. program. In addition, a student may choose consulting as at most one of the three electives. No more than three units of consulting can be taken in any one semester and no more than 6 units are allowed overall.

Students are not permitted to register for Non-Topical Research. If a student registers for three courses, such a student needs to fill out a 12 unit program, and does so, by enrolling in STAT 912 (Statistics Seminar) for 3 units; a grade of S or NS will be given for STAT 912 based upon attendance. The credits for STAT 912, however, as noted above, do not count toward the 24 units requirement.

Examination Schedule There are two examinations required for the M.S. degree:

Master's Exam This covers STAT 512, STAT 513, and either STAT 516, 531, or STAT 718; it is given once a year on the second Saturday in April (if this coincides with the Easter weekend, then it will be given on the third Saturday in April).

Language Exam This covers one programming language (SPlus) and one statistical package (SAS); it is given once a year on the second Saturday in April (if this coincides with the Easter weekend, then it will be given on the third Saturday in April).

Doctor of Philosophy Degree

Course requirements The Ph.D. degree requires 72 credits of statistics and approved mathematics courses at the 500 level and above. All statistics courses at the 500 level and higher, except STAT 501 and 520, may be counted toward the Ph.D. degree. Statistical consulting (STAT 995) is limited to a minimum of 3 and a maximum of 6 credits. Further, statistics seminar (STAT 912), directed reading (STAT 996), and non-topical or dissertation research (STAT 971 and 999) are limited to a combined total of 18 credits.

MATH 511, 531, 532, 531, 552, 731, 732 and 736 may be counted without special permission. MATH 510 or 512 may not be used toward the Ph.D. degree requirements. Other mathematics courses, as well as courses from other University programs, such as applied mathematics, computer science, economics, and systems engineering, may be counted subject to successful petition to the Graduate Committee of the Division of Statistics.

General examinations All students are required to take the Ph.D. General Exams at the end of the first year. The exams encompass the six required first year courses (Option A students take exams on five required first year courses). The exams are given on the Friday and Saturday preceding the first day of classes in the Fall semester of the second year. Only one retake is allowed; it is given on the Friday and Saturday preceding the first day of classes in Spring semester of the second year.

Qualifying examination The Ph.D. Qualifying Exam is designed to establish the candidate’s preparedness for dissertation research. It must be taken in the third year of graduate study. By the time of taking the examination, the candidate should have chosen a broad area of potential research (e.g. multivariate statistics) and a probable dissertation advisor. The Ph.D. Qualifying Exam is not intended as a dissertation proposal and it is not expected that the student have formulated a probable dissertation topic prior to taking the qualifying exam.

In consultation with the dissertation advisor, the student should choose a committee of at least two faculty members. Normally this committee shall be chosen from the Statistics and Biostatistics faculty. The committee together with the student shall choose a small coherent package of one to three papers for the student to prepare and present. The selected papers should be in the student’s proposed area of dissertation research and should involve substantial statistical issues.

The format of the exam consists of a talk prepared by the student and delivered to the Statistics and Biostatistics graduate students and faculty. After the talk, the Statistics and Biostatistics faculty will question the student to establish the student’s understanding of the papers and of the background subject fields inherent in these papers.

Language requirement The Computer Language Exam covers one statistical programming language (S-Plus) and one statistical package (SAS); it is given once a year on the second Saturday in April (if this coincides with the Easter weekend, then it will be given on the third Saturday in April).

Course Descriptions

STAT 500 - (3) (Y)
Introduction to Applied Statistics
Prerequisite: Instructor permission; corequisite: STAT 598.
Introduces estimation and hypothesis testing in applied statistics, especially the medical sciences. Measurement issues, measures of central tendency and dispersion, probability, discrete probability distributions (binomial and Poisson), continuous probability distributions (normal, t, chi-square, and F), and one- and two-sample inference, power and sample size calculations, introduction to non-parametric methods, one-way ANOVA and multiple comparisons.

STAT 501 - (3) (Y)
Statistical Computing and Graphics
Prerequisite: STAT 110 or 112, and graduate standing or instructor permission. Students who have received credit for STAT 501 may not take STAT 501 for credit.
Introduces statistical computing using S-PLUS. Topics include descriptive statistics for continuous and categorical variables, methods for handling missing data, basics of graphical perception, graphical displays, exploratory data analysis, the simultaneous display of multiple variables. Students should be experienced with basic text-editing and file manipulation on either a PC or a UNIX system, and with either a programming language (e.g. BASIC) or a spreadsheet program (e.g. MINITAB or EXCEL). Credit earned in this course cannot be applied toward a graduate degree in statistics.

STAT 512 - (3) (Y)
Applied Linear Models
Prerequisite: MATH 312 or 510, or instructor permission; corequisite: STAT 598.
Linear regression models, inferences in regression analysis, model validation, selection of independent variables, multicollinearity, influential observations, autocorrelation in time series data, polynomial regression, and nonlinear regression.

STAT 513 - (3) (Y)
Applied Multivariate Statistics
Prerequisite: MATH 351 and 312 or 510, or instructor permission; corequisite: STAT 598.
Topics include matrix algebra, random sampling, multivariate normal distributions, multivariate regression, MANOVA, principal components, factor analysis, discriminant analysis. Statistical software, such as SAS or S-PLUS, will be utilized.

STAT 514 - (3) (SI)
Survival Analysis and Reliability Theory
Prerequisite: MATH 312 or 510, or instructor permission; corequisite: STAT 598.
Topics include lifetime distributions, hazard functions, competing-risks, proportional hazards, censored data, accelerated-life models, Kaplan-Meier estimator, stochastic models, renewal processes, and Bayesian methods for lifetime and reliability data analysis.

STAT 515 - (3) (SI)
Actuarial Statistics
Prerequisite: MATH 312 or 510, or instructor permission; corequisite: STAT 598.
Topics include lifetime distributions, hazard functions, competing-risks, proportional hazards, censored data, accelerated-life models, Kaplan-Meier estimator, stochastic models, renewal processes, and Bayesian methods for lifetime and reliability data analysis.

STAT 516 - (3) (E)
Experimental Design
Prerequisite: MATH 312 or 510, or instructor permission; corequisite: STAT 598.
Introduction to the basic concepts in experimental design, analysis of variance, multiple
comparison tests, completely randomized design, general linear model approach to ANOVA, randomized block designs, Latin square and related designs, completely randomized factorial design with two or more treatments, hierarchical designs, split-plot and confounded factorial designs, and analysis of covariance.

STAT 517 - (3) (O)  
Applied Time Series  
Prerequisite: MATH 312 or 510, or instructor permission; corequisite: STAT 598.  
Studies the basic time series models in both the time domain (ARMA models) and the frequency domain (spectral models), emphasizing application to real data sets.

STAT 518 - (3) (SI)  
Numerical Methods in Statistics  
Prerequisite: MATH 351 and knowledge of a programming language suitable for scientific computation, or instructor permission.  
Studies linear algebra and related numerical algorithms important to statistics, including linear least-squares, eigenvalues and eigenvectors, QR decomposition, singular value decomposition, and generalized matrix inverses.

STAT 519 - (3) (Y)  
Introduction to Mathematical Statistics  
Prerequisite: MATH 312 or 510, or instructor permission.  
Studies statistical distribution theory, moments, transformations of random variables, point estimation, hypothesis testing, and confidence regions.

STAT 520 - (3) (E)  
Design and Analysis of Sample Surveys  
Prerequisite: STAT 110 or 112, or MATH 312, or instructor permission.  
Discussion of the main designs and estimation techniques used in sample surveys: simple random sampling, stratification, cluster sampling, double sampling, post-stratification, ratio estimation. Non-response problems and measurement errors will also be discussed. Many properties of sample surveys will be developed through simulation procedures. The SUDAAN software package for analyzing sample surveys will be used. This course may not be used for graduate degrees in the Department of Statistics. Students who have received credit for STAT 313 may not take STAT 520 for credit; this course may not be used for graduate degrees in the Department of Statistics.

STAT 531 - (3) (Y)  
Clinical Trials Methodology  
Prerequisite: A basic statistics course (MATH 312/510) or instructor permission.  
Studies experimental designs for randomized clinical trials, sources of bias in clinical studies, informed consent, logistics, and interim monitoring procedures (group sequential and Bayesian methods).

STAT 598 - (1) (S)  
Applied Statistics Laboratory  
Corequisite: 500-level STAT applied statistics course.

This course, the laboratory component of the department’s applied statistics program, deals with the use of computer packages in data analysis. Enrollment in STAT 598 is required for all students in the department’s 500-level applied statistics courses (STAT 501, 512, 513, 514, 516, 517, 520). STAT 598 may be repeated for credit provided that a student is enrolled in at least one of these 500-level applied courses; however, no more than one unit of STAT 598 may be taken in any semester.

STAT 599 - (3) (IR)  
Topics in Statistics  
Prerequisite: Instructor permission.  
Studies topics in statistics that are not part of the regular course offerings.

STAT 711 - (3) (Y)  
Foundations of Statistics  
Prerequisite: STAT 519 or instructor permission.  
Introduction to the concepts of statistics via the establishment of fundamental principles which are then applied to practical problems. Such statistical principles as those of sufficiency, ancillarity, conditionality, and likelihood will be discussed.

STAT 712 - (3) (E)  
Statistical Inference  
Prerequisite: STAT 711 or instructor permission.  
A rigorous mathematical development of the principles of statistics. Covers point and interval estimation, hypothesis testing, asymptotic theory, Bayesian statistics, and decision theory from a unified perspective.

STAT 713 - (3) (Y)  
Generalized Linear Models  
Prerequisite: STAT 512 and 519, or instructor permission.  
Includes the origins of generalized linear models, classical linear models, probit analysis, logit models for proportions, log-linear models for counts, inverse polynomial models, binary data, polytomous data, quasi-likelihood models, and models for survival data.

STAT 714 - (3) (O)  
Multivariate Statistical Analysis  
Prerequisite: STAT 513 and 519, or instructor permission.  
Includes multivariate normal distributions, maximum likelihood inference, invariance theory, sample correlation coefficients, Hotelling’s T2 statistic, Wishart distributions, discriminant analysis, and MANOVA.

STAT 715 - (3) (E)  
Non-Parametric Statistical Analysis  
Prerequisite: STAT 519 and one of STAT 512, 513, 514, 516, 517; or instructor permission.  
Includes order statistics, distribution-free statistics, U-statistics, rank tests and estimators, asymptotic efficiency, Bahadur efficiency, M-estimates, one- and two-way layouts, multivariate location models, rank correlation, and linear models.

STAT 718 - (3) (O)  
Sample Surveys  
Prerequisite: MATH 312 or 510, or instructor permission.  
An introduction to the design and analysis of sample surveys. Topics include simple random sampling, stratified sampling, multi-stage (cluster) sampling, double sampling, ratio and regression estimates. Theoretical discussions are supplemented by computer simulated surveys, and studies of the documentation of ongoing government sample surveys.

STAT 719 - (3) (SI)  
Statistical Computing  
Prerequisite: STAT 512 and 518, or instructor permission.  
Studies computational methods for multiple linear regression, unconstrained optimization and non-linear regression, model-fitting based on $L_2$ norms, and robust estimation.

STAT 720 - (3) (Y)  
Advanced Probability Theory for Applied Scientists  
Prerequisite: MATH 531 or instructor permission.  
The course will emphasize those techniques which are important for the applied statistician: various forms of convergence for random variables, central limit theorems, asymptotics for a transformation of a sequence of random variables, and an introduction to martingales.

STAT 721 - (3) (O)  
Advanced Linear Models  
Prerequisite: MATH 351, STAT 512, 513, 519, or instructor permission.  
Review of matrix theory (various types of generalized inverses and their properties). Theory and analysis of fixed effects linear models. Estimation of variance components in random and mixed effects linear models. Various methods of estimation of variance components such as: Henderson’s three methods, MLE, RMLE, MINQUE (and its modifications). Theory and analysis of random and mixed effects models.

STAT 731 - (3) (O)  
Advanced Data Analysis  
Prerequisite: STAT 512 and 513, or instructor permission.  
Includes modern computer-intensive methods of data analysis, including splines and other methods of nonparametric regression, bootstrap, techniques for handling missing values and data reduction, nonlinear regression, graphical techniques, and penalized maximum likelihood estimation.

STAT 812 - (3) (SI)  
Topics in Statistics  
Study of topics in statistics that are currently the subject of active research.

STAT 817 - (3) (SI)  
Advanced Time Series  
Prerequisite: MATH 736, STAT 517, or instructor permission.  
Introduces stationary stochastic processes, related limit theorems, and spectral representations. Includes an asymptotic theory for estimation in both the time and frequency domains.
STAT 831 - (3) (O)
Advanced Survival Analysis
Prerequisite: STAT 514, 519, 720 (or MATH 736), and 731, or instructor permission.
MATH 511 is recommended, but not required.
Includes the Martingale theory and the counting process approach to survival analysis, asymptotic theory of the Cox and related models, censoring, competing risks, multiple events per subject, parametric survival models, advanced model diagnostics for the Cox model, time-dependent covariates, bootstrap model validation, and frailty models.

STAT 832 - (3) (SI)
Topics in Biostatistics
Study of topics in biostatistics that are currently the subject of active research.

STAT 912 - (3) (Y)
Statistics Seminar
Advanced graduate seminar in current research topics. Offerings in each semester are determined by student and faculty research interests.

STAT 995 - (1-3) (Y)
Statistical Consulting
Prerequisite: Current registration in the statistics graduate program, or instructor permission.
Introduces the practice of statistical consultation. A combination of formal lectures, meetings with clients of the statistical consulting service, and sessions in the statistical computing laboratory.

STAT 996 - (3-9) (Y)
Directed Reading
Research into current statistical problems under faculty supervision.

STAT 997 - (3-12) (Y)
Non-Topical Research, Preparation for Doctoral Research
For doctoral research, taken before a dissertation director has been selected.

STAT 999 - (3-12) (Y)
Non-Topical Research
For doctoral research, taken under the supervision of a dissertation director.

The Statistics Colloquium
The colloquium is held weekly, with the sessions devoted to research activities of students and faculty members, and to lectures by visiting statisticians on current research interests.

Faculty
Office of the Dean of the College and Graduate School of Arts and Sciences
Edward L. Ayers, B.A., M.Phil., Ph.D., Dean
Nancy Bertram, B.A., M.A., M.B.A., Associate Dean for Management and Budget
Peter Brunjes, B.A., M.A., Ph.D., Associate Dean for Graduate Programs and Research
Adam Daniel, B.A., M.A., Associate Dean for Administration and Planning
Richard Handler, B.S., M.A., Ph.D., Associate Dean for Academic Programs
George Hornberger, B.S., M.A., Ph.D., Associate Dean for the Sciences
Thomas W. Jennings, Jr., B.S., M.A., Ph.D., Associate Dean for Arts and Sciences
Karen Ryan, B.A., M.A., Ph.D., Associate Dean for Arts, Humanities, and Social Sciences
Lorraine Schuyler, B.A., M.A., Ph.D., Assistant Dean for Arts and Sciences

Department of Anthropology
Professors
Ellen L. Contini-Morava, B.A., M.A., Ph.D., Chair
Frederick H. Damon, A.B., Ph.D.
Richard Handler, B.A., M.A., Ph.D.
Ravindra S. Khare, B.Sc., M.A., Ph.D.
Peter A. Metcalfe, B.A., M.A., Ph.D.
Charles L. Perdue, A.B., M.A., Ph.D.
Stephen E. Plog, A.B., M.A., Ph.D., Commonwealth Professor of Anthropology
J. David Sapir, B.A., M.A., Ph.D.
H.L. Seneviratne, B.A., M.A., Ph.D.
Dell Upton, B.A., M.A., Ph.D., David A. Harrison III Professor of New World Studies
Roy Wagner, A.B., A.M., Ph.D.

Associate Professors
Eve Danziger, B.A., M.A., Ph.D.
Gertrude Fraser, B.A., M.A., Ph.D.
Jeffrey L. Hantman, B.A., M.A., Ph.D.
Adria LaViolette, B.A., M.A., Ph.D.
Daniel Lefkowitz, B.A., M.A., Ph.D.
Susan M. McKinnon, B.A., M.A., Ph.D.
George Montore, B.A., M.A., Ph.D.
John Shepherd, B.A., M.A., Ph.D., J.D.
Patricia Wattenmaker, A.B., M.A., Ph.D.

Lecturers
Ira Bashkow, B.A., M.A., Ph.D.
Pensri Ho, B.A., M.A., Ph.D.
Wende E. Marshall, B.A., M.A., Ph.D.
Rachel Most, B.A., M.A., Ph.D.
Hanan Sabea, B.A., M.A., Ph.D.
Nicolas Sihlé, B.Sc., M.A., D.E.A., Ph.D.

Affiliated Faculty
Ekaterina Makarova, B.A., M.A., Ph.D., Lecturer in Sociology
Fraser D. Neiman, A.B., M.Phil., Ph.D., Director of Archaeology, Monticello
M. Norman Oliver, M.A., M.D., Assistant Professor, Family Medicine

McIntire Department of Art
Professors
Paul Barolsky, B.A., M.A., Ph.D., Commonwealth Professor of Art History
Malcolm Bell III, A.B., Ph.D.
Richard L. Crozier, B.F.A., M.F.A.
Dean Dass, B.A., M.F.A.
John J. Dobbins, B.A., M.A. (English), M.A., Ph.D.
Philip N. Geiger, B.F.A., M.F.A.
Lawrence O. Goede, A.B., M.A., Ph.D., Art Chair
Marion E. Roberts, B.A., M.A., Ph.D.
J. David Summers, B.A., M.A., Ph.D., William R. Kenan, Jr., Professor of the History of Art

Assistant Professors
Kevin Everson, B.F.A., M.F.A.
Francesca Fiorani, B.A., M.A., Ph.D.
Douglas Fordham, B.A., M.A., Ph.D.
Carmenita Higginbotham, B.A., M.A., Ph.D.
Maurie D. McNinis, B.A., M.A., Ph.D.
William Wylie, B.F.A., M.F.A.

Department of Asian and Middle Eastern Languages and Cultures
Professors
Peter Edwin Hook, B.A., M.A., Ph.D.
Robert Hueckstedt, A.B., Ph.D., Chair
Anne Behnke Kinney, B.A., M.A., Ph.D.
Farzaneh Milani, B.A., M.A., Ph.D.
Michiko Niikuni-Wilson, B.A., M.A., Ph.D.
Mohammed Sawaie, B.A., M.A., Ph.D.

Associate Professor
Shawn Lyons, B.A., M.A., Ph.D.

Assistant Professors
Stefania Burk, B.A., M.A., Ph.D.
Ellen Fuller, B.A., M.A., M.B.A., Ph.D.
Daniel Lefkowitz, B.A., M.A., Ph.D.
Hsin-Ishin Liang, B.A., M.A., Ph.D.

Department of Astronomy
Professors
Steven A. Balbus, B.S., Ph.D.
Roger A. Chevalier, B.S., Ph.D., W. H. Vanderbilt Professor of Astronomy
John F. Hawley, B.A., B.S., Ph.D.
Robert W. O’Connell, A.B., Ph.D., John Downman Hamilton Professor of Astronomy
Robert T. Rood, B.S., Ph.D., Chair
Craig L. Sarazin, B.S., M.A., Ph.D., W. H. Vanderbilt Professor of Astronomy
William C. Saslaw, B.A., Ph.D.
Michael F. Skrutskie, B.A., M.S., Ph.D.
Trinh X. Thuan, B.S., Ph.D.
Charles R. Tolbert, B.S., M.S., Ph.D.
D. Mark Whittle, B.A., Ph.D.

**Associate Professor**
Steven R. Majewski, B.A., M.S., Ph.D.

**Assistant Professors**
Zhi-Yun Li, B.S., M.S., Ph.D.
Edward M. Murphy, B.S., M.A., Ph.D.

**Department of Biochemistry and Molecular Genetics**

**Professors**
Gary Balian, Ph.D.
Daniel Burke, Ph.D.
Anindya Dutta, Ph.D.
Edward H. Egelman, Ph.D.
Adrian K.I. Gear, D.Phil.
Joyce L. Hamlin, Ph.D., Chair
Kevin R. Lynch, Ph.D.
William R. Pearson, Ph.D.
Emily Rissman, Ph.D.
Ronald P. Taylor, Ph.D.
Thomas Thompson, Ph.D. Emeritus

**Associate Professors**
David Auble, Ph.D.
Joel W. Hockensmith, Ph.D., Director
Rong Li, Ph.D.
Bryce Paschal, Ph.D.
Fraydoon Rastinejad, Ph.D.

**Assistant Professors**
Patrick Grant, Ph.D.
Sepideh Khorasanizadeh, Ph.D.
Marty Mayo, Ph.D.
Christopher Moskaluk, M.D., Ph.D.
Jeffrey Smith, Ph.D.
Todd Strukenberg, Ph.D.
Rosalie Uhl, Ph.D.
David Wotton, Ph.D.

**Department of Biology**

**Professors**
Paul N. Adler, B.S., M.A., Ph.D., William R. Kenan, Jr., Professor of Biology
Janis Antonowics, B.A., Ph.D., Lewis and Clark Professor of Biology
Ronald H. Bauerle, A.B., M.S., Ph.D.
Gene D. Block, B.S., M.S., Ph.D., Thomas Jefferson Professor of Biology
George S. Bloom, B.A., Ph.D.
W. Otto Friesen, B.A., M.A., Ph.D.
Reginald H. Garrett, B.S., Ph.D.
John Gittelman, B.A., Ph.D.
Robert M. Grainger, A.B., Ph.D., W.L. Lyons Brown Professor of Biology
Jay Hirsh, B.A., Ph.D.
Masashi Kawasaki, B.D., Ph.D.
Raymond E. Keller, B.S., M.S., Ph.D.
Robert H. Kretsinger, B.A., Ph.D., Commonwealth Professor of Biology
DeForest Mellon, Jr., B.S., Ph.D.
Michael Menaker, B.A., Ph.D., Commonwealth Professor of Biology
Douglas R. Taylor, B.S., M.S., Ph.D., Chair
Michael P. Timko, B.S., M.S., Ph.D.

Henry M. Wilbur, B.S., Ph.D., Runk, Professor of Biology

**Associate Professors**
Barry Condron, B.S., Ph.D.
Claire R. Cronmiller, A.B., M.A., Ph.D.
Laura Galloway, B.A., Ph.D., Director of Undergraduate Studies
Carla Green, B.S., M.S., Ph.D.
Mark Kopeny, B.S., M.S., Ph.D.
Ignacio Provencio, B.A., Ph.D.
W. Michael Worthington, B.A., Ph.D., Director of Graduate Studies

**Assistant Professors**
Keith Kozmynski, B.A., B.S., M.S., Ph.D.
Deborah Roach, B.A., Ph.D.
Dorothy Schafer, B.A., Ph.D.
Herman Wijnen, M.Sc., Ph.D.

**Department of Cell Biology**

**Professors**
Robert A. Bloodgood, Ph.D.
George S. Bloom, Ph.D.
J. David Castle, Ph.D.
Douglas W. DeSimone, Ph.D.
Charles J. Flickinger, M.D.
Barry Gumbiner, Ph.D., Chair
Ronald H. Kretsinger, A.B., Ph.D.
Barry T. Hinton, Ph.D.
Alan F. Horwitz, Ph.D.
Roy C. Ogle, Ph.D.
Terry T. Turner, Ph.D.
Judith M. White, Ph.D.

**Associate Professors**
James E. Casanova, Ph.D.
Richard N. Day, Ph.D.
Samuel A. Green, Ph.D.
Gordon W. Laurie, Ph.D.
K. Kevin Pfister, Ph.D.

**Assistant Professors**
Susanna R. Kellner, M.D.
Keith G. Kozmynski, Ph.D.
Suzanne M. Moenter, Ph.D.
Ann E. Sutherland, Ph.D.
Mary Kate Worden, Ph.D.

**Associate Professor of Medical Education**
Michael J. Iwanik, Ph.D.

**Assistant Professor of Medical Education**
Virginia L. Taylor, Ph.D.

**Professor of Research**
William M. Sutherland, Ph.D.

**Department of Chemistry**

**Professors**
Ralph C. Allen, B.A., Ph.D.
Leslie S. Andrews, B.S., Ph.D.
Robert G. Bryant, A.B., Ph.D., Commonwealth Professor of Chemistry
Robert E. Burnett, B.S., Ph.D.
David S. Cafiso, A.B., Ph.D.
James N. Demas, B.A., M.S., Ph.D.
Cassandra Fraser, B.A., M.T.S., Ph.D., Cavaliers’ Distinguished Teaching Professor

**Associate Professors**
H. Mario Geysees, B.S., M.S., Ph.D., Alfred Burger Professor
Charles M. Grisham, B.S., Ph.D.
W. Dean Harman, B.S., Ph.D.
Ian Harrison, B.S., Ph.D., Chair
Sidney M. Hecht, A.B., Ph.D., John W. Mallet Professor of Chemistry
Donald F. Hunt, B.S., Ph.D., University Professor
James Landers, B.S., Ph.D.
Kevin Lehmann, B.S., Ph.D.
Timothy L. Macdonald, B.S., Ph.D.
James A. Marshall, B.S., Ph.D., Thomas Jefferson Professor of Chemistry
Brooks Pate, B.S., Ph.D., William R. Kenan, Jr., Professor of Chemistry
Lin Pu, B.S., Ph.D.
Frederick S. Richardson, B.S., M.A., Ph.D., Commonwealth Professor of Chemistry
Richard J. Sundberg, B.S., Ph.D.
Carl O. Trindle, B.A., Ph.D.

**Associate Professors**
Milton Brown, M.D., Ph.D.
John Bushweiler, Ph.D.
Sergei Egorov, B.S., Ph.D.
Glenn J. McGarvey, B.S., Ph.D.
Assistant Professors
Carthene Bazemore-Walker, B.S., Ph.D.
Jason Chruma, B.S., Ph.D.
B. Jill Venton, B.S., Ph.D.

**Department of Classics**

**Professors**
Jenny S. Clay, B.A., M.A., Ph.D.
Jane W. Crawford, B.A., M.A., Ph.D.
Bernard D. Frischer, B.A., Ph.D.
P. David Kovacs, B.A., M.A., Ph.D.
John D. Mikalson, B.A., Ph.D., W. R. Keenan, Jr., Professor
John F. Miller, B.A., M.A., Ph.D., Chair
Anthony J. Woodman, B.A., Ph.D., Basil L. Gildersleeve Professor of Classics

**Associate Professors**
John D. Dillery, A.B., M.A., Ph.D.
B. Gregory Hays, B.A., Ph.D.
K. Sara Myers, A.B., Ph.D.

**Department of Drama**

**Associate Professors**
Thomas A. Bloom, B.A., M.A., Ph.D.
Mary K. Burke, B.A., M.F.A.
L. Douglas Grissom, B.A., M.A., M.F.A.
R. Lee Kennedy, B.A., M.F.A.
Walter F. Korte, B.A., M.A., Ph.D.
Richard P. Warner, B.A., M.F.A.
Gweneth F. West, B.A., M.F.A.

**Assistant Professors**
Marianne Kubik
Marcy J. Linson, B.F.A., M.F.A.
Michael C. Rasbury, B.A., M.A.
Judith M. Reagan, B.A., M.A.
A. Elizabeth Rudelich Tucker, A.B., M.F.A.
James Wilson Department of Economics

Professors
Simon P. Anderson, B.Sc., M.A., Ph.D.
Kenneth G. Elzinga, B.A., M.A., Ph.D., Robert C. Black Professor
Maxim Engers, B.A., B.S. (Math), B.S. (Comp. Sci.), M.A., Ph.D.
Thomas W. Epps, B.A., Ph.D.
Charles A. Holt, B.A., M.S., Ph.D., A. Willis Robertson Professor in Political Economy
John A. James, B.A., Ph.D.
William R. Johnson, B.A., Ph.D.
John Mckean, B.S., M.A., Ph.D.
David E. Mills, B.I.E., M.S., M.A., Ph.D., Chair
Leonard J. Mirman, B.A., M.S. (Econ.), M.S. (Math.), Ph.D., Paul Goodloe McIntire Professor
Edgar O. Olsen, B.A., Ph.D.
Steven Stern, B.A., Ph.D., Merrill Bankard Professor of Economics and Director of Graduate Studies
Eric Van Wincoop, B.A., M.A., Ph.D.

Associate Professors
Ronald W. Michener, B.S., Ph.D.
Christopher Otrok, B.A., Ph.D.
John V. Pepper, B.A., M.S., Ph.D.
Sarah Turner, B.A., Ph.D.

Assistant Professors
Emily J. Blanchard, A.B., M.S., Ph.D.
Marco Cagetti, B.A., M.A., Ph.D.
Albert Choi, B.A., J.D., Ph.D.
Federico Ciliberto, B.A., Ph.D.
Leora Friedberg, B.A., Ph.D.
Sanjay Jain, B.A., M.A., Ph.D.
Amalia R. Miller, S.B., Ph.D.
Eric R. Young, B.A., M.A., Ph.D.

General Faculty
Bruce Reynolds, B.A., M.A., Ph.D.

Department of English Language and Literature

Professors
Peter Baker, B.A., Ph.D.
Ann Beattie, B.A., M.A., Edgar Allen Poe Professor of English
Alison Booth, B.A., M.A., Ph.D.
Gordon M. Braden, B.A., Ph.D., Linden Kent Memorial Professor of English, Chair
Peter Brooks, B.A., M.A., Ph.D.
Paul A. Cantor, A.B., Ph.D.
John Casey, B.A., LL.B., M.F.A., Henry Hoyns Professor of Creative Writing
John T. Casteen III, B.A., M.A., Ph.D., George F. Kaufman Presidential Professor
Karen S. Chase, B.A., M.A., Ph.D.
Gregory Colomb, B.A., M.A., Ph.D.
Stephen B. Cushman, B.A., M.A., Ph.D., Robert C. Taylor Professor of English
Rita Dove, B.A., M.F.A., Hon.D.Litt. (20), Commonwealth Professor of English
Johanna Drucker, B.A., M.A., Ph.D., Robertson Professor of Media Studies
Hoyt N. Duggan, B.A., Ph.D.
Mark W. Edmundson, B.A., M.Phil., Ph.D., Daniels Family Distinguished Teaching Professor of Arts and Sciences
Deborah Eisenberg, B.S.
Jessica R. Feldman, B.A., M.A., Ph.D.
Rita Felski, B.A., M.A., Ph.D.
Susan Fraiman, B.A., M.A., M.Phil., Ph.D.
K. Ian Grandison, B.S., M.L.A., University Professor
J. Paul Hunter, B.A., M.A., Ph.D.
Walter Jost, B.A., M.A., Ph.D.
J. Daniel Kinney, B.A., B.A., Ph.D.
Michael H. Levenson, B.A., Ph.D., William B. Christian Professor of English
Erik Lott, B.A., M.A., M.Phil., Ph.D.
Katharine E. Maus, B.A., M.A., Ph.D., James Branch Cabell Professor of English
Deborah McDowell, B.A., M.A., Ph.D., Alice Griffen Professor of English
Jerome J. McGann, B.S., M.A., Ph.D., John Stewart Bryant Professor of English and University Professor
David B. Morris, B.A., Ph.D., University Professor
Raymond J. Nelson, B.A., M.A., Ph.D., Arts and Sciences Professor of English
James C. Nohrenberg, B.A., Ph.D.
Barbara Nolan, B.A., M.A., Ph.D., Robert C. Taylor Professor of English
Gregory S. Orr, B.A., M.F.A.
Charles L. Perdue, A.B., M.A., Ph.D.
Stephen F. Railton, B.A., M.A., Ph.D.
R. Jahan Ramazani, B.A., M.A., M.Phil., Ph.D., William R. Kenan, Jr., Professor of English
Marlon Ross, B.A., M.A., Ph.D.
Anthony C. Spearing, M.A., William R. Kenan, Jr., Professor of English
Herbert F. Tucker, B.A., Ph.D., John C. Coleman Professor of English
David Vander Meulen, B.A., M.A., Ph.D.
Jennifer A. Wicke, B.A., M.A., Ph.D.
Charles P. Wright, B.A., M.F.A., Souder Family Professor of English

Associate Professors
Stephen D. Arata, B.A., M.A., Ph.D.
Sydney Blair, B.A., M.F.A.
Aniko Bodroghkozy, B.A., M.F.A. Ph.D.
Elizabeth Fowler, A.B., A.M., Ph.D.
Alan B. Howard, B.A., Ph.D.
Eleanor Kaufman, A.B., Ph.D.
Clare R. Kinney, B.A., M.A., Ph.D.
Victor Luftig, B.A., M.A., Ph.D.
Franny Nudelman, B.A., Ph.D.
Debra Nystrom, B.A., M.F.A.
John O’Brien, B.A., M.A., Ph.D.
Caroline Rody, B.A., M.A., Ph.D.
Lisa Russ Sparr, M.F.A.
John L. Sullivan, A.B., M.A., Ph.D.
Cynthia Wall, B.A., M.A., Ph.D.

Assistant Professors
Sylvia Chong, B.A., A.M., Ph.D.
David Colomba, B.A., Ph.D.
Christopher Kern, A.B., M.A., Ph.D.
Victoria J. Obwell, B.A., M.A., Ph.D.
Marion Rust, B.A., Ph.D.
Lisa Woolfolk, B.A., M.A., Ph.D.

Department of Environmental Sciences

Professors
Ralph O. Allen, B.A., Ph.D.
Robert Dolan, B.S., M.S., Ph.D.
James N. Galloway, B.A., Ph.D.
Bruce P. Hayden, B.S., M.S., Ph.D.
Janet S. Herman, B.S., Ph.D.
George M. Hornberger, B.S.C.E., M.S.C.E., Ph.D., Ernest H. Ern Professor of Environmental Sciences
Alan D. Howard, B.A., M.A., Ph.D.
Stephen Macko, B.S., B.A., M.S., Ph.D.
Aaron L. Mills, B.A., M.S., Ph.D.
H.H. Shugart, B.S., M.S., Ph.D., William W. Corcoran Professor of Environmental Sciences
David E. Smith, B.S., Ph.D.
Patricia Wilberg, B.A., M.S., Ph.D.
Henry L. Wilbur, B.S., Ph.D., B.F.D. Runk Professor of Botany and Professor of Environmental Science
Joseph C. Ziemann, B.S., M.S., Ph.D., Chair

Associate Professors
Robert Davis, B.S., M.S., Ph.D.
Howard Epstein, B.A., M.S., Ph.D.
Jose Fuentes, B.Sc., M.Sc., Ph.D., Cavaliers' Distinguished Teaching Associate Professor
Karen McGlathery, B.A., Ph.D.
Thomas Smith, B.S., Ph.D.

Assistant Professors
Paolo O'Dorico, M.S., Ph.D.
Deborah Lawrence, B.A., Ph.D.
Gregory Okin, B.A., M.S., Ph.D.
Todd M. Scanlon, B.A., M.S., Ph.D.
Vivian Thomson, A.B., M.A., Ph.D.

Research Professor
Michael Bowers, B.S., M.S., Ph.D., Director of Blandy Experimental Farm
Lecturer
E. Edmund Moomaw, B.A., Ph.D.

Department of Psychology

Professors
Joseph P. Allen, B.A., M.S., M.Phil., Ph.D.
Paul B. Baltes, B.A., M.A., Ph.D., University Professor
Peter C. Brunjes, B.S., Ph.D., Commonwealth Professor of Psychology
Gerald L. Clore, B.A., Ph.D., Commonwealth Professor of Psychology
Judy S. DeLoache, B.A., M.A., Ph.D., William R. Kenan, Jr., Professor of Psychology
Robert E. Emery, B.A., M.A., Ph.D.
James E. Freeman, A.B., M.A., Ph.D.
David L. Hill, B.S., M.S., Ph.D.
Michael Kubovy, B.A., Ph.D.
J. Jack Mc Ardle, B.A., M.A., Ph.D.
John R. Nesselroade, B.S., M.A., Ph.D., Hugh Scott Hamilton Professor of Psychology
Charlotte J. Patterson, B.A., M.A., Ph.D.
Dennis R. Profitt, B.S., M.S., Ph.D., Commonwealth Professor of Psychology
N. Dickon Reppucci, B.A., M.A., Ph.D.
Kerry L. Kilbridge, M.D.
Jae K. Lee, Ph.D.
John Lyman, M.D.
Wendy M. Novickoff, Ph.D.
Marshall D. Ruffin, Jr., B.A., M.B.A., M.P.H., M.D.
George J. Stukenberg, B.A., M.A., Ph.D.

Lecturers
Armando L. Bolmey, B.S., M.B.A.
Lori L. Elder, B.S., R.N.
Carolyn L. Engelhard, M.P.A.
Diane G. Hillman, M.A., M.P.A.
Jane Schubart, M.B.A., M.S.
Linda A. Watson, B.A., M.L.S.

Secondary and Adjunct Faculty
Ralph Allen, Ph.D.
Nisha Betchwey, B.A., M.P.H.
Donna Chen, M.P.H., Ph.D.
John (Jack) Bryant, B.S., M.D.
Lisa Kaplowita, B.S., M.S., M.D.
Pamela Kulkob, B.S., M.S., D.N.Sc.
Mark Levine, B.A., M.P.A., M.D.
John Marr, B.A., M.P.H., M.D.
Thomas Massaro, B.S., M.S., Ph.D., M.D.
Susan McLeod, B.S., M.P.H., M.D.
Philip Nieburg, B.A., M.D.
Norm Oliver, M.D., M.D.
Lisa Pastore, B.S., M.S., Ph.D.
Lillian Peake, B.A., M.P.H., M.D.
Margaret Foster Riley, A.B., J.D.

Department of Religious Studies

Professors
James F. Childress, B.A., B.D., M.A., Ph.D., John Allen Hollingsworth Professor of Ethics and Professor of Medical Education
M. Jamie Ferreira, B.A., M.A., Ph.D., Carolyn M. Barbour Chair in Religious Studies
Gerald F. Fogarty, B.A., M.A., Ph.D., M.D., B.D., S.T.M., Ph.D., William R. Kenan, Jr., Professor of Religious Studies
R. Edward Freeman, B.A., Ph.D.
Harry Y. Gamble, Jr., B.A., B.A., M.A., Ph.D., Chair
Paul S. Groner, B.A., M.Phil., Ph.D.
James Davison Hunter, B.A., M.A., Ph.D., Labrosse-Levinson Distinguished Professor of Religion, Culture, and Social Theory
Karen C. Lang, B.A., Ph.D.
Charles R. Marsch, B.A., M.A., Ph.D.
H.C. Erik Middelfort, B.A., M.A., Ph.D.
Peter W. Ochs, B.A., M.A., Ph.D., Edgar M. Bronfman Professor of Modern Judaic Studies
Benjamin C. Ray, A.B., A.M., Ph.D.
Eugene F. Rogers, Jr., A.B., M.A., M.Phil., Ph.D.

Associate Professors
Thomas M. Guterbock, B.A., M.A., Ph.D.
Elizabeth I. Merwin, B.S., M.S., Ph.D.
Gina R. Petroni, Ph.D.
Mary E. Ropka, B.S., M.S., Ph.D.
John B. Schorling, B.A., M.P.H., M.D.

Assistant Professors
James R. Barrett, B.A., Ph.D.
Ruth Gaare Bernheim, J.D., M.P.H.
Viktor E. Bovbjerg, Ph.D.
Wendy F. Cohn, B.A., Ph.D.
William M. Detmer, B.A., M.D.
Kerry L. Kilbridge, M.D.
Jae K. Lee, Ph.D.
John Lyman, M.D.
Wendy M. Novickoff, Ph.D.
Marshall D. Ruffin, Jr., B.A., M.B.A., M.P.H., M.D.

Department of Public Health Sciences

Professors
Robert D. Abbott, B.S., M.P.H., A.M., Ph.D.
Mark R. Conaway, Ph.D.
Daniel J. Cox, Ph.D.
Jack M. Gwaltney, Jr., B.A., M.D.
Frederick G. Hayden, B.A., M.D., Stuart S.
Richardson Professor of Clinical Virology
William A. Knaus, B.A., M.D., Evelyn Troup
Hobson Professor, Chair
John T. Philbrick, M.D.
Lawrence H. Phillips II, A.B., M.D.
Robert E. Reynolds, B.A., M.D., Dr.P.H.
David C. Shawson, B.S., M.D.
Douglas P. Wagner, A.B., Ph.D.

Associate Professors
Douglas P. Wagner, A.B., M.A., Ph.D.
John T. Philbrick, M.D.
Robert E. Reynolds, A.B., M.D.
David C. Shawson, B.S., M.D.
Douglas P. Wagner, A.B., Ph.D.

Assistant Professors
Larry D. Bouchard, B.A., Ph.D.
David F. Germeno, B.A., Ph.D.
Cynthia Hoehler-Fatton, A.B., M.A., Ph.D.
Judith L. Kovacs, B.A., M.A., Ph.D.
Charles T. Mathews, B.A., M.A., Ph.D.
Margaret E. Mohrman, B.S., M.D., Ph.D.
Vanessa Ochs, M.F.A., M.Phil., Ph.D.
Augustine Thompson, B.A. (Hist.), B.A.
(Phil.), M.A., M.Div., Ph.D.
Heather Anne Warren, B.A., M.A., M.Div., M.A., Ph.D.

Assistant Professors
Elizabeth Shanks Alexander, B.A., M.A., M.Phil., Ph.D.
Asher Biemann, B.A., M.A., Ph.D.
Jennifer Geddes (Research), B.A., M.A., Ph.D.
Martien Halvorson-Taylor, B.A., M.A.
John W. Nemeck, B.A., M.A., M.Phil., Ph.D.
John Portmann, B.A., M.A., Ph.D.
Corey D Walker, B.A., M.A., Ph.D.

Lecturers
Nicole Farmer Hurd, B.A., M.A., Ph.D.
William Wilson, B.A., M.Div., Ph.D.

Department of Slavic Languages and Literatures

Professors
Julian W. Connolly, B.A., M.A., Ph.D., Chair
Mark J. Elson, B.A., M.A., Ph.D.
Jan L. Perkowski, A.B., A.M, Ph.D.
Karen Ryan, B.A., M.A., Ph.D.

Associate Professors
David Herman, B.A., M.A., Ph.D.
Dariusz Toczyck, B.A., A.M., Ph.D.

Assistant Professor
Margarita Nafpaktitis, B.A., M.A., Ph.D.

Department of Sociology

Professors
Rae Blumberg, B.A., M.A., Ph.D.
James Davison Hunter, B.A., M.A., Ph.D.
Labrosse-Levinson Distinguished Professor of Religion, Culture, and Social Theory, Chair
Paul W. Kingston, B.A., M.A., M.Phil., Ph.D.
Krishan Kummar, B.A., M.Sc., Ph.D.
Steven L. Nock, B.A., M.A., Ph.D.

Associate Professors
Sarah M. Corse, B.A., M.A., Ph.D.
Stephan Fuchs, B.A., M.A., Ph.D.
Thomas M. Guterbock, B.A., M.A., Ph.D.
Jeffrey K. Olick, B.A., M.A., M.Phil., Ph.D.
Milton Vickerman, B.A., M.A., M.Phil., Ph.D.

Assistant Professors
Bethany Bryson, B.A., M.A., Ph.D.
Elizabeth Gorman, A.B., J.D., A.M. Ph.D.
Ekaterina Makarova, B.A., M.A., Ph.D.
William Bradford Wilcox, B.A., M.A., Ph.D.
Affiliated Faculty
Donald Black, B.A., M.A., Ph.D., University Professor
Joanne Cohoon, B.A., M.A., Ph.D., Adjunct Research Professor
Joseph E. Davis, B.A., M.A., Ph.D., Adjunct Research Professor

Francis Lewis Berkeley, Jr., B.S., M.A., Rolf Benzinger, B.A., Ph.D., Associate Professor
David T. Gies, B.A., M.A., Ph.D., Commonwealth Professor of Spanish
David T. Haberly, A.B., A.M., Ph.D., Professor of Portuguese
Maria-Ínés Lagos, B.A., M.A., Ph.D.
Fernando Operé, Licenciado, M.A., Ph.D.
Deborah Parker, B.A., M.A., Ph.D.
Randolph Pope, B.A., M.A., Ph.D., Commonwealth Professor of Spanish, Chair
Joel Rini, B.S., M.A., Ph.D.
Donald L. Shaw, B.A., M.A., Ph.D., Brown-Forman Professor of Spanish American Literature

Assistant Professors
L. Fernando Tejedo-Herrero, B.A., M.A., Ph.D.
Adrienne Ward, B.A., M.A., Ph.D.

Department of Statistics
Professors
Theodore C. Chang, B.S., Ph.D.
Daniel M. Keenan, B.A., M.S., M.S., Ph.D.

Associate Professors
Jeffrey J. Holt, B.A., Ph.D., Chair
Feifang Hu, B.Sc., M.Sc., Ph.D.

Assistant Professors
Amanda Wang, B.S., M.S., Ph.D.
Jianhui Zhou, B.S., M.S., Ph.D.

Retired Faculty
William W. Abbot, A.B., M.A., Ph.D., Professor Emeritus of History
Martin C. Battefitt, B.A., Ph.D., Professor Emeritus of English
Rolf Benzinger, B.A., Ph.D., Associate Professor Emeritus of Biology
Francis Lewis Berkeley, Jr., B.S., M.A., Professor Emeritus and Former University Archivist
Raymond C. Rice, Jr., Ph.B., Ph.M., Ph.D., Professor Emeritus of Psychology
Clive Bradbeer, Ph.D., Professor Emeritus of Biochemistry and Molecular Genetics
Arthur S. Brill, B.A., Ph.D., Professor Emeritus of Physics
Robert F. Bryan, B.Sc., Ph.D., Professor Emeritus of Chemistry
Edwin Burmeister, B.A., M.A., Ph.D., Professor Emeritus of Economics
Juan Cano-Ballesta, Baccalaureate, Ph.D., Professor Emeritus of Spanish
Theodore Caplow, A.B., M.A., Ph.D., Professor Emeritus of Sociology
Francis A. Carey, B.S., Ph.D., Professor Emeritus of Chemistry
Martha S. Carpenter, B.A., M.A., Ph.D., Former Associate Professor of Astronomy
Vittorio Celli, Ph.D., Professor Emeritus of Physics
Kenneth Chastain, B.S., M.A., Ph.D., Professor Emeritus of Spanish, Italian, and Portuguese
Inis L. Claude, B.A., M.A., Ph.D., Professor Emeritus of Government and Foreign Affairs
Ralph Cohen, B.A., M.A., Ph.D., Professor Emeritus of English
James Webb Cole, Jr., M.S., Ph.D., Professor Emeritus of Chemistry
John Crisp Coleman, B.A., M.A., Former Assistant Professor of English
Marvin Colker, B.A., Ph.D., Professor Emeritus of Classics
Robert F. Cook, A.B., M.A., Ph.D., Professor Emeritus of French
Michael Coopersmith, B.A., Ph.D., Associate Professor Emeritus of Physics
Richard J. Coughlin, B.A., M.A., Ph.D., Professor Emeritus of Sociology and Anthropology
Edward Courtney, B.A., M.A., Professor Emeritus of Classics
J. Christopher Crocker, A.B., Ph.D., Professor Emeritus of Anthropology
Lester Gilbert Crocker, B.A., M.A., Ph.D., Professor Emeritus of French
Thomas Irving Crowell, B.S., A.M., Ph.D., Professor Emeritus of Chemistry
Hugh M. Davidson, A.B., Ph.D., Professor Emeritus of French Literature
Robert T. Denommé, B.A., M.A., Ph.D., Professor Emeritus of French
James Norman Dent, A.B., M.A., Ph.D., Professor Emeritus of Biology
Martha A. Derthick, A.B., M.A., Ph.D., Professor Emeritus of Government and Foreign Affairs
Cora A. Diamond, B.A., B.Phil. (Oxon.), Professor Emeritus of Philosophy
Fred Diehl, B.A., Ph.D., Associate Professor Emeritus of Biology
Lionel Duuisit, Licence, Diplome, Ph.D., Former Associate Professor of French
Charles F. Dunkl, B.Sc., M.A., Ph.D., Professor Emeritus of Mathematics
William Larkin Duren, Jr., A.B., Ph.D., University Professor Emeritus of Mathematics
Nicholas C. Edsall, B.A., M.A. (London), Ph.D., Professor Emeritus of History

Robert L. Ellison, A.B., Ph.D., Associate Professor Emeritus of Environmental Sciences
Ernest H. Ern, B.S., M.S., Ph.D., University Professor Emeritus
Alfred Phillip Fernbach, Ph.B., Ph.D., Professor Emeritus of Government and Foreign Affairs
Lewis S. Feuer, B.S., A.M., University Professor Emeritus of Sociology and Government and Foreign Affairs
Alastair D. S. Fowler, FBA, M.S. (Edin), D.Phil., D.Litt. (Oxon.), former Professor of English
Anthony Frankfurter, B.A., Ph.D., Research Professor Emeritus of Biology, General Faculty
Laurence W. Fredrick, B.A., M.A., Ph.D., Professor Emeritus of Astronomy
Charles R. Fry, B.A., Ph.D., Associate Professor Emeritus of Psychology
George P. Garrett, B.A., M.A., Ph.D., Professor Emeritus of English
Michael Garstang, B.A., M.A., Ph.D., Professor Emeritus of Environmental Sciences
Lydia Gasman, Licence en droit (Bucharest), M.A., Ph.D., Associate Professor Emeritus of Art History
Paul M. Gaston, A.B., M.A., Ph.D., Professor Emeritus of History
H. Grant Goodell, B.S., Ph.D., Professor Emeritus of Environmental Sciences
Irving I. Gottesman, B.S., Ph.D., Professor Emeritus of Psychology
Norman A. Graebner, B.S., M.A., Ph.D., Professor Emeritus of Public Affairs
John Graham, B.A., M.A., Ph.D., Professor Emeritus of Rhetoric and Communication Studies
Gertrude S. Greenslade, B.A., M.A., Ph.D., Professor Emeritus of Economics
Russell N. Grimes, B.S., Ph.D., Professor Emeritus of Chemistry
Paul R. Gross, A.B., M.A., Ph.D., Professor Emeritus of Biology
Mary Elizabeth Haas, B.S., M.A., Former Lecturer in Mathematics
James G. Hagan, B.A., M.A., Professor Emeritus of Art
William H. Harbaugh, A.B., M.A., Ph.D., Professor Emeritus of American History
M. Roy Harris, B.A., M.A., Ph.D., Professor Emeritus of French
Julian Norris Hartt, B.A., B.D., M.A., Ph.D., Professor Emeritus of Religious Studies
Ronald M. Hartwell, B.A., M.A., D.Phil., Former Professor of Economics
Walter Hauser, B.A., M.A., Ph.D., Professor Emeritus of History
Javier S. Herrero, Licenciado en Derecho, Licenciado en Letras, Doctor en Letras, Professor Emeritus of Spanish
E. Mavis Hetherington, B.A., M.A., Ph.D., Professor Emeritus of Psychology
E. D. Hirsch, B.A., M.A., Ph.D., Professor Emeritus of English & Education
Matthew Holden, Jr., B.A., M.A., Ph.D., Professor Emeritus of Government and Foreign Affairs
Charlton G. Holland, A.B., M.D., Former Lecturer in Anthropology