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  Email: troffkin@art.wustl.edu

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(314) 935-6340 (Ph.D.)
Email: mba@olin.wustl.edu (MBA)
wilsonc@wustl.edu (Ph.D.)

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Mary Sansalone, Dean
Graduate Admissions: (314) 935-7974
Email: bethschnettler@seas.wustl.edu

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Admissions: (314) 935-4525
Email: admiss@wulaw.wustl.edu

The School of Medicine
Larry J. Shapiro, Executive Vice Chancellor for Medical Affairs and Dean
Admissions: (314) 362-6858
Email: wumscoa@wustl.edu

The George Warren Brown School of Social Work
Edward F. Lawlor, Dean
Admissions: (314) 935-6676
Email: msw@wustl.edu

OFFICERS OF THE GRADUATE SCHOOL OF ARTS AND SCIENCES

Mark S. Wrighton  
Chancellor
Edward S. Macias  
Executive Vice Chancellor and Dean of Arts and Sciences
Robert E. Thach  
Dean of the Graduate School of Arts and Sciences
Elaine P. Berland  
Associate Dean of the Graduate School
  Student Affairs  
  (314) 935-7355
  Email: berland@wustl.edu
Nancy P. Pope  
Associate Dean of the Graduate School  
Olin Fellowship Program Coordinator  
(314) 935-6818  
Email: n.p.pope@wustl.edu

Sheri R. Notaro  
Assistant Dean  
Chancellor’s Fellowship Program, Financial Services  
(314) 935-6821  
Email: snotaro@wustl.edu

Bridget Coleman  
Director of Admissions & Recruiting  
(314) 935-8753  
Email: bridgetcolemann@wustl.edu

Ann Cooper  
Registrar of the Graduate School  
(314) 935-8525  
Email: ann_cooper@wustl.edu

Lynn Aromando  
Administrative Assistant  
(314) 935-6843  
Email: lynn_aromando@wustl.edu

Louise Neeley  
Accounting Coordinator  
(314) 935-8460  
Email: louise@wustl.edu

Angie Mahon  
Assistant Registrar of the Graduate School  
(314) 935-6876  
Email: amahon@wustl.edu

Martha Vicente  
Administrative Assistant  
(314) 935-7355  
Email: mcvicente@wustl.edu

Nancy Buchanan  
Administrative Aide  
(314) 935-6818  
Email: buchanan@wustl.edu

Amy Gassel  
Administrative Aide  
(314) 935-6821  
Email: agassel@wustl.edu

Barb Knipshild  
Administrative Aide  
(314) 935-6880  
Email: bsknipshild@wustl.edu

The Graduate School of Arts and Sciences is located in 153 North Brookings Hall.

Mail: Campus Box 1187  
Washington University  
One Brookings Drive  
St. Louis, MO 63130-4899

Telephone: (314) 935-6880  
Fax: (314) 935-4887  
Email: graduateschool@artsci.wustl.edu  
Website: http://artsci.wustl.edu/GSAS
About the Graduate School

NATURE, PURPOSE, AND HISTORY

The Graduate School of Arts and Sciences is, in essence, a collection of individual advanced students and individual faculty members engaged in collaborative exploration of the horizons of human understanding in a wide array of disciplinary and interdisciplinary areas.

From the point of view of a prospective student, the primary purpose of attending graduate school may be to attain high professional competence in some general or particular area of learning, thus to prepare for a lifetime career in that area. This is a reasonable and laudable goal. By the completion of a program of advanced study one should be able to lay claim to being a well-trained philosopher, clinical psychologist, economist, biologist, or the like. But, to the extent that graduate education has been successful, much more is accomplished than the development of professional skills; one’s entire relationship to learning is changed in a permanent and rewarding way. Having tasted the unique flavor of discovery, having developed insights in a particular area of investigation no one else has ever had – and perhaps having experienced the thrill of sharing those insights or having put them to a practical test – one is seldom satisfied again with being a passive learner of the knowledge and wisdom of others. In an era when the well-trained cannot all be assured of lifelong employment that directly utilizes their specialized training, an era when the major challenges before society undergo rapid, continuous, and somewhat unpredictable change, development of the generalized analytical and creative skills required for original scholarship, research, and problem solving becomes at least as important in one’s career preparation as mastery of a particular body of knowledge.

The array of facilities and administrative and instructional arrangements that together constitute the Graduate School of Arts and Sciences all have as their purpose creating the physical and intellectual environment in which inquiry, intellectual growth, and discovery can and do occur, and in which the results of original inquiry are regularly subjected to the tests of reason and evidence. Among the critical components the University can and does provide to those ends are a small and select graduate student body (so that highly individualized interactions with faculty are facilitated), faculty members dedicated to personal scholarship and the expansion of knowledge, richly stocked libraries, well-equipped laboratories, accessible computer facilities, and all the other accoutrements necessary for scholarly effort that is both rooted in an historical context and in step with the modern world. In all these regards Washington University compares favorably to the finest graduate institutions in the world. But the key ingredient of a successful graduate career each student must bring with him or herself: a zest for the pursuit and expansion of understanding. Increasingly, motivation to engage in creative, independent scholarship is the prime determinant of success in graduate school and thereafter.

It was scarcely a decade after its founding in 1853 that Washington University embarked on graduate education and awarded its first graduate degree in 1865. Over the years since that
time the administrative structure responsible for overseeing graduate education has undergone several changes in name and organizational arrangements. Following a decade of sustained growth in graduate enrollments and degree programs, in 1922 the ‘Committee on Advanced Degrees of the Faculty of Arts and Sciences,’ which had served for several decades, was supplanted; for the first time a separate administrative unit, the School of Graduate Studies, was established to supervise graduate programs. In 1947 the present name, the Graduate School of Arts and Sciences, was adopted; simultaneously the scope of its charge was broadened to include (in addition to programs leading to the degrees of Master of Arts and Doctor of Philosophy in the traditional academic disciplines) programs leading to a small number of professional degrees, now including the Master of Music, the Master of Fine Arts in Writing, the Master of Arts in Education, and the Master of Arts in Teaching. While most other professional degrees continue to be offered by the professional schools (Architecture, Art, Business, Engineering, Law, Medicine, and Social Work), the small number of select professional degree programs within Arts and Sciences has been found to bear a synergistic relationship to academic degree programs in related fields.

For most of their history the Graduate School and the University as a whole have remained near the forefront of American higher education. The University was on the first list of accredited institutions of higher education published by the North Central Association and was one of the first schools west of the Mississippi River elected to membership in the prestigious Association of American Universities. The Graduate School is a charter member of both the Association of Graduate Schools and the Council of Graduate Schools.

MISSION STATEMENT

The mission of Washington University is the promotion of learning, learning by students and by faculty. Teaching, or the transmission of knowledge, is central to our mission, as is research, or the creation of new knowledge. Faculty composed of scholars, scientists, artists, and members of the learned professions serve society by teaching; by adding to the store of human art, understanding, and wisdom; and by providing direct services, such as health care.

Our goals are:

- to foster excellence in our teaching, research, scholarship, and service;
- to prepare students with the attitudes, skills, and habits of lifelong learning and with leadership skills, enabling them to be useful members of a global society; and
- to be an exemplary institution in our home community of St. Louis, as well as in the nation and the world.

To this end we intend:

- to judge ourselves by the most demanding standards;
- to attract people of great ability from all types of backgrounds;
- to encourage faculty and students to be bold, independent, and creative thinkers; and
- to provide the infrastructure to support teaching, research, scholarship, and service for the present and for future generations.
GOVERNANCE

The present organization of the Graduate School dates from 1965, when the faculties of the Graduate School and of the College coalesced into a single Faculty of Arts and Sciences. The Dean of the Graduate School serves as its chief administrator and reports to the Dean of Arts and Sciences on its affairs. The Graduate Council of the Graduate School of Arts and Sciences acts as a discussion forum on all matters pertaining to the Graduate School and serves as the legislative branch of the Graduate School. The Council is chaired by the Dean of the Graduate School and consists of one faculty and one graduate student representative named by each of the degree programs offered through the Graduate School. (These include all the Master of Arts and Doctor of Philosophy degree programs at Washington University.) The presence of graduate students on the Council as coequals with faculty is symbolic of the active role graduate students are expected to play, in partnership with the faculty, in their scholarly development.

Officially formed in Spring 1993, the Graduate Student Senate is composed of graduate student representatives from each degree granting program, and works closely with Graduate School and other campus administrators to address student concerns. Meetings of the Graduate Student Senate are open to all graduate students. A Graduate Student Senate representative serves on the Graduate and Professional Council, a student body that considers issues relevant to graduate and professional students in all eight schools of the University.

The Professional and Graduate Student Coordinating Committee considers broad issues that affect graduate and professional students in general (i.e. issues that are not specific to a given school, degree, or discipline). This University standing committee consists of two representatives from each school: one faculty/administrator named by the Dean of each school and a graduate student representative, and is chaired by the Dean of the Graduate School of Arts and Sciences.

There are also two graduate student representatives to the Washington University Board of Trustees. The application and nomination process for the two graduate student representatives is conducted annually in early spring by the Professional and Graduate Student Coordinating Committee.

FACILITIES FOR ADVANCED STUDY AND RESEARCH

Libraries

The Washington University Libraries constitute a major academic resource featuring 14 libraries (12 on the Danforth Campus, one at West Campus, one at the Medical School); large print and electronic collections; and expert librarians whose first priority is helping students and faculty find the information they need. At the center of this network is the renovated John M. Olin Library, housing humanities, social sciences, engineering, and special collections; a technology center (the Arc); a dual-purpose café and extended-hours study space; reading rooms; lounges; and
small-group studies. School or departmental libraries serve art and architecture, biology, business, chemistry, earth and planetary sciences, East Asian studies, law, mathematics, medicine, music, physics, and social work. New or renovated facilities bring a new level of comfort and service to Olin Library, whose renovation and expansion was completed in 2004. Shortly thereafter, the Earth & Planetary Sciences Library opened in a new departmental building in mid-2005. And in 2006, the Sam Fox School of Design & Visual Arts opened, complete with new space for its library, which serves art, art history, architecture, and archeology. The West Campus Library houses the Film & Media Archive, University Archives, and less-used materials.

The Libraries house more than 3.6 million books, journals, and government documents; 2.5 million microforms; and 50,000 audio-visual titles. Current students can get books from other libraries via Interlibrary Loan, which gives access to materials from libraries around the world, or MOBIUS, which allows members of the WU community to request books from more than 60 Missouri academic or public libraries and pick them up at whichever WU library they specify, usually in just a few days. The Libraries also offer instant access to vast online resources. Using our website, http://library.wustl.edu, students can search the catalog, request or renew books, read articles, or search databases. This means that information is available around the clock to persons connecting from home or anywhere in the world. Any personal computer that is linked to the University’s computing systems can access all the resources available at that site; to connect from off-site, go to http://library.wustl.edu/about/access.html.

**Laboratories**

As the University Libraries testify to the endurance of knowledge, the laboratories of the University testify to its unfolding character. Three major laboratory centers of research have been developed and regularly improved by the University during the last twenty-five years. Along the north side of the Danforth campus are six buildings for the Arts and Sciences Departments of Chemistry, Physics, and Earth and Planetary Sciences. These physical science departments are located next to the Arts and Sciences Department of Mathematics and to the six buildings of the School of Engineering and Applied Science; indeed, one of the Chemistry laboratories is connected to the Engineering complex, to facilitate collaboration between the basic and applied sciences. On the south side of the Danforth campus, there is a corresponding life sciences center with extensive laboratories in a six-building complex, next to which the Psychology Building houses laboratories for its human-subjects research. The third major laboratory center is housed on the Medical campus, where space is almost equally divided between clinical and research facilities and where the laboratories are especially designed to facilitate interdisciplinary research.

Students in all lab-based disciplines have access to training and research opportunities throughout the University’s laboratories, not only to those in their own department or even their own School. Further afield, research in both the biological and social sciences is abetted by Tyson Valley Park, an Ozark property of 2,000 acres 25 miles from St. Louis, which is being developed with particular attention to programs of studies in environmental
biology. In addition, the staffs of the Missouri Botanical Garden, one of the great herbariums of the world, and of the Danforth Plant Science Center cooperate closely in the University processes of instruction and research in many subfields, especially of biology and chemistry.

Computing Facilities

Arts and Sciences Computing provides computational facilities for Arts and Sciences faculty, students and staff, network connections and computer consulting; teaching and research computing resources; and coordination with departmental computing facilities. Accounts on the “artsci” system provide e-mail, web page development, access to University Libraries, online course registration, network newsgroups, and more. Information is available from the Arts and Sciences Computing Center Web Page at http://artsci.wustl.edu/ASCC/.

Art Museums

The University's Mildred Lane Kemper Art Museum, which has a new building opening in 2006, is located in the Sam Fox School of Design & Visual Arts at the eastern end of the Danforth campus. The first art museum established west of the Mississippi, the University's permanent collection includes significant holdings of 19th- and 20th-century American and European paintings, sculptures, and prints as well as major contemporary works and a significant numismatics collection. Artists represented in the Museum's holdings include Max Beckmann, George Caleb Bingham, Christian Boltanski, Alexander Calder, Thomas Cole, Max Ernst, Barbara Kruger, Joan Miro, Pablo Picasso, Jackson Pollock, and Robert Rauschenberg. Special loan exhibitions expand the WU community's on-campus resources in the visual arts. Access to the Mildred Lane Kemper Art Museum is free.

In addition, the Saint Louis Art Museum, one of the nation's leading comprehensive art museums, is just one-third of a mile east of the Danforth campus, with collections that include works of art of exceptional quality from virtually every culture and time period. Areas of notable depth include Oceanic art, pre-Columbian art, ancient Chinese bronzes, and European and American art of the late 19th and 20th centuries, with particular strength in 20th-century German art. Access to the permanent collections (but not to the special exhibitions) of the Saint Louis Art Museum is free.

Centers and Institutes of the University

The development of centers and institutes represents a response by the University to advances in knowledge, to new perceptions of relations among bodies of knowledge, and to the application of knowledge to the problems of people, nature, and society. Some centers and institutes include regularly organized instructional units; others are organized specifically for research but also contribute significantly to graduate education through their interdisciplinary and multidisciplinary investigative approaches and their fellowship and traineeship programs.
There are a dozen centers within Arts and Sciences, spanning the range of disciplines: the Center in Political Economy, the Max Kade Center for Contemporary German Literature, the McDonnell Center for Space Sciences, and the Murray Wiederbaum Center on the Economy, Government, and Public Policy; and the Centers for the Humanities, for the Joint Projects in the Humanities & Social Sciences, for Inquiry in Science Teaching & Learning, for Materials Innovation, for New Institutional Social Sciences, for Scientific Parallel Computing, for Study of Ethics & Human Values, and for Urban Research & Policy.

Students in many Arts and Sciences programs find their interests served by interdisciplinary centers housed elsewhere. On the Danforth Campus, a partial list would include the University-wide Center for Health Policy, Skandalaris Center for Entrepreneurial Studies, and Gephardt Institute of Public Service, as well as multiple research centers located in the Schools of Business, Engineering, Law, and Social Work. On the Medical campus, a non-exhaustive list of important research centers would include the Alzheimer's Disease Research Center, the Center for Clinical Studies, the Siteman Cancer Center, and the Washington University Pain Center. Finally, the University belongs to a number of multi-institutional research consortia, including the Center for Imaging Science and the Midwest Regional Center of Excellence for Biodefense and Emerging Infectious Diseases Research. Like the laboratories, centers and institutes work with students from across the University to enable them to complete their research.
Admissions

CALENDAR FOR ADMISSION

Students should apply directly to the department or program in which they are interested; if the program recommends that an applicant be admitted, then the Graduate School may admit that applicant. Complete applications for admission and financial aid, including all required supporting documents, should reach campus by the application deadline. Prospective students should consult the department or program to which they wish to apply to learn the deadline date. Late applicants should recognize that they may be at a disadvantage in receiving consideration for admission and financial aid. Notification of decisions on admission of applicants who meet their application deadline will ordinarily be made in mid-March.

Admissions and awards of financial aid are for a specific academic year, and students who do not matriculate in the year for which they were admitted must normally reapply. Reapplication requires a request to reactivate the original application, submission of the application fee, and information needed to make the record current. Original applications are kept only for one calendar year. Admitted students may request a deferral of admission for up to one year in special circumstances; however, such special requests require approval both of the admitting program and of the Graduate School. Applicants to whom admission is not offered may reapply after they have gained added evidence of qualification.

Many, but not all, departments and administrative committees, for reasons having to do with academic schedules and the cumulative nature of subject matter fields, hesitate to admit applicants to begin graduate study in the spring semester. Students interested in beginning graduate study in the spring semester or during the summer should seek the advice of the departments or committees administering their programs.

REQUIREMENTS FOR ADMISSION

Washington University encourages and gives full consideration to all applicants for admission and financial aid without regard to age, race, color, national origin, handicap, sexual orientation, or religion. Admission to the Graduate School of Arts and Sciences is granted on the bases of ability, promise of achievement, and (in order to maintain the individuality of instruction) the number of openings for new students currently available in each department or program. Admission to most of the graduate programs is highly selective and by no means can be assured for all who have successfully completed the minimal requirements for admission. Many programs are able to offer admission to fewer than one applicant in five.

The minimum requirement for admission is a record sufficiently strong to support confidence that the applicant can participate effectively in the graduate community and creditably complete the program of study for which application is made. Evidence favorable to meeting this requirement includes records of study at the baccalaureate or higher levels of a quality substantially above the minimum required for such degrees at
recognized institutions, concentrations of previous study in or near the subject matter field proposed for graduate study, analytic letters of evaluation based upon thorough knowledge of the applicant’s abilities, as well as the results of examinations for which national norms have been determined. Additional kinds of evidence, e.g. research papers, honors theses, or other evidence of prior creative work or practical experience in the proposed field of study, are often extremely useful to admissions committees in evaluating the applicant’s potential for independent thought and work in the field; it is generally in an applicant’s interest to submit such relevant evidence for evaluation even if it does not appear to have been specifically solicited.

The Graduate School is strongly interested in recruiting, enrolling, retaining, and graduating students from diverse backgrounds. Applications for admission by students from diverse backgrounds to any of the Graduate School’s departments and programs are encouraged and welcomed.

The constitution of the University stipulates that “no sectarian test...shall be allowed...in the admission of scholars,” and this stipulation is studiously observed. Moreover, the University recognizes that individual students have the right to observe religious holidays that occur during regularly scheduled classes; students are asked to make arrangements with their instructors to make up work missed for religious reasons, and instructors are asked to make every reasonable effort to accommodate such requests.

To the greatest extent possible, students with disabilities are integrated into the student population as equal members. Services provided may include but are not limited to note-taking, tutoring, special parking, the provision of readers or signers, and appropriate academic accommodations such as alternate testing conditions.

APPLICATION FOR ADMISSION

The application is available online through the Graduate School’s web site, http://artsci.wustl.edu/GSAS. Paper applications are also available from the offices of the Graduate School of Arts and Sciences or from departments and administrative committees, which often add additional materials to the general forms. Applications are ready for final consideration after the following items have been submitted: (1) The application form for admission and, for paper applications, the applicant information form, properly completed. (2) Official transcripts of all baccalaureate or higher studies taken by the applicant. The transcripts must be requested by the applicant and sent directly by the institution(s) where the studies were pursued. Official supplementary transcripts must be submitted, as soon as they are available, to cover work completed after making application. (3) Three reference forms properly completed by persons closely acquainted with the applicant, preferably those who recently have taught the student in the subject specified for graduate study. (4) Application fee or fee waiver. (5) Such additional evidence of a documentary or other nature as may be required by the department or committee with which the applicant wishes to study, e.g. honors theses, undergraduate seminar or research papers, personal interviews. (As noted above, it is generally in the applicant’s interest to submit the latter kinds of evidence even if they have not been specifically solicited. Similarly, an applicant who will be in the St.
Louis area at an appropriate time may find it useful to request an appointment to meet with one or more persons in the field of interest to discuss his or her aspirations for graduate study.) The Graduate Record Examination is required or strongly recommended for admission to all advanced degree programs. Information on the Graduate Record Examination may be requested directly from the Educational Testing Service web site, www.gre.org. The examination should be taken in time for results to reach Washington University, directly from the Educational Testing Service, before the application deadline. Students should take the examination with the view that no admission decisions are made on the basis of standardized exams alone; a high score may strengthen an application, while a lower one is considered in conjunction with other evidence which has been submitted.

Admission to graduate study ordinarily is without condition or contingency save those which pertain to satisfactory academic progress and citizenship in the University community. When an application supports sharply contradictory conclusions about an applicant’s readiness for graduate study, however, the department or committee may recommend provisional admission. Provisional admission gives the faculty an opportunity to determine the student’s qualifications for graduate study. Students ordinarily are continued provisionally only for one semester, at which time a decision concerning full admission is reached. Students who require further undergraduate preparation in their proposed fields before they effectively can begin graduate study should apply to one of the undergraduate divisions of the University rather than to the Graduate School of Arts and Sciences.

ADMISSION OF INTERNATIONAL STUDENTS

The admission of international students is handled jointly by the department or committee to which application is made, the Graduate School, and the University’s Office for International Students and Scholars. International students considering application to Washington University for advanced degree study should read carefully the preceding sections on the admission calendar, requirements for admission, and admissions procedures. In addition, they should have a general familiarity with academic practices and customs of universities in the United States. All international students are required to present evidence of their ability to support themselves financially while here. International students whose native language is not English must submit score reports from the Test of English as a Foreign Language (TOEFL) or other documentation of English language skills. Information on this test is available from its web site, www.toefl.org. The examination should be taken in time for results to reach Washington University, directly from the Educational Testing Service, before the application deadline.

It is important to note that while certain minimum standards of competency in reading, writing, and speaking English may qualify an international student for admission into a degree program, higher standards are frequently required for qualification to receive teaching assistantships. A comprehensive program of courses in English as a second language is available for students who wish to improve competency in English.
CATEGORIES OF ADMISSION

Students are usually admitted to the Graduate School of Arts and Sciences as full-time candidates for a specific degree program. The largest category of exception includes the master’s degrees administered through University College, which admit students as part-time candidates. There are also two categories of admission to graduate courses without admission to candidacy for a graduate degree, as follows.

Student Not Candidate for a Degree (SNCD)

SNCD admission to one of the Graduate School’s programs may be granted to qualified students who hold a Bachelor’s degree or its equivalent and who wish to enroll in graduate or advanced undergraduate courses on a non-degree basis. Examples include professionals and others who seek to improve their knowledge or skills through enrollment in selected courses, international exchange students who are studying at the University for a limited duration, students in good standing at other graduate schools, and students who wish to test their capabilities in a graduate setting. Students in this category are assigned home program advisors and are accorded the same privileges as degree students. Applicants for non-degree study in the Graduate School should follow all application procedures outlined in the section headed ‘Application for Admission.’ Continuation as a student not candidate for degree is subject to the same academic and other standards that apply to degree students.

Non-degree students may, upon recommendation by the admissions committee of an organized graduate program and concurrence by the Dean of the Graduate School, be subsequently advanced to degree status without formal reapplication to the Graduate School. In special cases, SNCD students may be eligible for financial assistance through the regular aid vehicles of the Graduate School.

Graduate Student Unclassified

A student who wishes to enroll for selected graduate-level courses without admission to the Graduate School is generally permitted to do so by following the procedures for registering as a Graduate Unclassified student through the Graduate School. Application for admission is not required for such registration, and permission to register as a Graduate Unclassified student does not constitute admission to the Graduate School. Moreover, permission to take more than 6 hours of graduate credit within one program requires the signature of that program’s graduate studies advisor. Unclassified students are not eligible for student services, including financial assistance administered by the Graduate School and its affiliated programs.
Financial Information

TUITION

The maximum tuition fee is the equivalent of 12 credit units or "hours." Students who enroll for 9 or more hours per semester are automatically regarded as full-time students and are charged a flat full-time rate. Students enrolled for fewer than 9 units are charged on a per unit basis. By right of the University, the tuition rate is subject to annual change.

WITHDRAWALS AND REFUNDS

Requests for refund of tuition by reason of withdrawal should be made by submitting a Complete Withdrawal Form to the Graduate School Office. Requests for refunds for withdrawal from individual courses should be submitted in writing to the Graduate School Registrar. The last date of class attendance is ordinarily used in determining the adjustment. Students withdrawing within the first two weeks of classes will receive a full refund; those withdrawing before the end of the fourth week pay 20 percent; those withdrawing before the end of the eighth week pay 40 percent. There is no refund after the eighth week of the semester except for reasons of health. Such reasons must be certified or verified by Student Health Services, in which case the University will make a pro rata refund of tuition if notice of withdrawal is received before the end of the twelfth week of the semester. Students who have had their full tuition remitted for them by the Graduate School or other scholarship will not receive any refund.

HEALTH FEE

All full-time students are charged a mandatory health fee. This fee includes comprehensive health insurance and access to Student Health Services. Additional insurance coverage, such as for prescription medicines and dependents, may be purchased for an additional charge. For details on the health insurance plan and services provided to students, consult the Student Health Services web site, http://shs.wustl.edu/. The health fee is subject to annual change. The Graduate School subsidizes the health fee for most of its students; subsidized students pay approximately 10% of the fee.

ACADEMIC FEES

The academic fees listed below apply to students who wish to maintain their degree candidacy during semesters in which they do not enroll for coursework and to students eligible for full-time status despite enrollment for fewer than nine semester units. The amounts are subject to revision on an annual basis. Note that students receiving financial assistance from the Graduate School of Arts and Sciences (fellowships, assistantships, etc.) are required to maintain full-time student status either by registering for at least 9 hours of course credit or by paying the continuing student fee.
Continuing Student’s Fee

This fee is assessed to students who have completed coursework requirements (at least 72 semester units for a doctorate and 24 units for a master’s) for an advanced degree and whose involvement in other degree-related activities is judged sufficient to warrant full-time student status. Students in this category are granted, without additional charge, normal use of laboratories, libraries and other instructional or research facilities of the University. This fee also applies to students eligible for or required to maintain full-time status who have not completed coursework requirements and who are enrolled for fewer than 9 units per semester.

Non-resident Candidate’s Fee

This fee is charged to all students who have completed at least 18 units toward an advanced degree, do not enroll in any coursework, and wish to maintain their degree candidacy. In particular, this fee is applicable during leaves of absence from degree programs. “Nonresident” does not imply distance from St. Louis but implies less than full-time involvement in one’s degree program; i.e., the fee is charged only to part-time students. Students in this category, as well as other part-time students enrolling for one or more units, may make normal use of University facilities by paying small additional fees directly to these facilities.

In deciding whether to register for the continuing student fee or the non-resident candidate fee, students should consider the facts that they usually do not continue to enjoy health insurance coverage, student visa status, student loan deferment, and the right to rent University-owned housing unless they are full-time students. Also, as noted above, students receiving financial assistance from the University are required to be full-time students.

FINANCIAL SUPPORT

Financial aid is available to help students meet the expenses of graduate study. The chief financial aids on which graduate students currently rely are grants, fellowships, and traineeships (from university, governmental, private, or endowed sources); tuition scholarships; assistantships in teaching or research; clinical internships (in applied social sciences); loans, personal savings, and outside employment. The following sections are meant to convey only general ideas of the possibilities open to graduate students, together with an outline of the advantages and requirements of each of the major forms of assistance. Because financial aid is connected to subjects of learning, applicants generally will get the most precise notions of possibilities by consulting the faculty and administration of their program of study. In many programs, students will be required to provide detailed financial information each year in order to be considered for financial aid. Details concerning provision of this information will be sent to all applicants and enrolled students of whom it is required.

Beginning in 1994, the Graduate School has undertaken to provide long-term financial support for resident Ph.D. candidates in good academic standing. Almost all such candidates receive support through their fifth or sixth year in residence.
University Tuition Scholarships

Scholarship awards may cover part or all the costs of tuition to the limit of full-time study. Scholarships are available to both new and continuing students. Beyond the course work requirements for the A.M. and Ph.D. degrees, partial or full tuition scholarships covering the Continuing Student’s Fee will be considered only for students who are receiving a University Fellowship, Continuing Fellowship, Dissertation Fellowship, external Fellowship or Traineeship that funds tuition remission (at least partially), or Teaching Assistantships that are provided from University funds.

Since perception of academic merit is the sole criterion for the award of tuition scholarships, these grants are not subject to taxation under federal tax law at this time. However, stipend awards, including those described below, are taxable.

Fellowships

Fellowships are stipend awards aimed at supporting full-time study, although a certain amount of teaching or research may be required as part of the advanced degree program. Many fellowships are awarded in open competition, while others are earmarked for specific departments, activities, or types of students. Most fellowships are awarded on an annual basis and are not renewable. In exceptional cases, however, fellowships may be awarded for up to five years of study with annual renewal contingent upon satisfactory academic progress. In the award of fellowships, the Graduate School encourages the policy of giving special, although not exclusive, attention to highly qualified applicants for admission and to continuing students who have progressed expeditiously to the final stage of their dissertations but have been unable to locate outside sources of support. A student receiving a fellowship must maintain full-time student status or forfeit the fellowship, and may not accept other employment unless it has been specifically pre-approved by the department and the Graduate School.

Worthy of particular note are the Chancellor’s Graduate Fellowships for diversity and the Mr. and Mrs. Spencer T. Olin Fellowships for Women. These special fellowship packages provide full tuition scholarships plus generous annual stipends for up to five years of graduate study. Full information concerning these fellowships can be found on the Graduate School of Arts and Sciences web site.

Traineeships

Many departments and administrative committees, especially in the biological and behavioral sciences, offer financial help in the form of traineeships. Traineeships may be awarded on an annual basis or may be renewable for periods up to three years, subject to satisfactory academic progress. Traineeships may emphasize training in research, while teaching is sometimes required as part of the advanced degree requirements, or, in some applied social science specializations, training which combines theory, research, and clinical practice in field study.

Applied specializations in the social sciences at both the master’s and doctoral levels (e.g., education, psychology, social work) also offer internships financed by public or private agencies, which emphasize the practical applications of research findings.
A limited number of internships in secondary school teaching are open to graduate students in any degree program relevant to the secondary school curriculum. No prior coursework in the field of education is required.

**Teaching Assistantships**

There is a possibility in most programs for graduate students to be appointed as teaching assistants. The duties of a teaching assistant vary widely according to department. They may include assisting faculty in the preparation, instruction and grading of an undergraduate course; tutorial responsibilities; monitoring the laboratory segment of an undergraduate course; and, in some instances, full course responsibility. Teaching assistant duties generally require an average of 10 hours per week, with an upper limit of 17.5 hours, although there is great variance depending upon departmental needs. A student receiving a teaching assistantship must maintain full-time student status and may not accept other employment unless it has been specifically pre-approved by the department and the Graduate School.

Teaching assistants are highly valued members of the Washington University instructional team. Graduate students selected as teaching assistants customarily receive departmental pedagogical training including seminars in class preparation, critiques of teaching methodology, and disciplinary mentoring. In addition, the Washington University Teaching Center, established ‘to enhance teaching effectiveness,’ conducts an annual University-wide orientation meeting for all new teaching assistants, consults with departments on TA training programs, sponsors teaching workshops, and offers training on multi-media in University-managed classrooms. To recognize outstanding teaching by teaching assistants, the Dean’s Awards for Teaching Excellence are given each Spring. Awards include a certificate of recognition and a cash prize.

International teaching assistants who will be assigned, for the first time, duties involving the use of English to instruct students in the College of Arts and Sciences or in University College, are required to pass a special pedagogy/oral proficiency examination as a prerequisite to appointment. More details are available through the Office of International Students and Scholars.

**Research Assistantships**

Except in remarkable cases, research assistantships are limited to students who have completed at least one full year of graduate study. They are available usually, but not exclusively, in the natural and social sciences, and are offered through departments and committees of instruction and their cooperating research institutes. The amount paid to research assistants varies according to such factors as the period of appointment, the program of study, and the availability of tuition supplements. Assistantships in research are noteworthy awards because they generally signify a major advance towards fulfilling advanced degree requirements and allow participation in collaborative enterprises of research that are often working models of the idea of a community of scholars. A student receiving a research assistantship must maintain full-time student status and may not accept other employment unless it has been specifically pre-approved by the department and the Graduate School.
Residential Life Opportunities

The Office of Residential Life has a limited number of part-time Graduate Fellow positions that are available each academic year. The Graduate Fellow is a graduate student who works in close collaboration with the Residential College Director to help enhance the academic environment of the Residential College through program development and implementation. The duties of the Graduate Fellow will vary depending upon the mission of the individual Residential College. Preference is given to candidates with previous Residential Life leadership experience, at either the graduate or undergraduate level. The Graduate Fellow receives a stipend of $6,000 which is paid over 10 months. Selection takes place in April each year and application information is available on the Residential Life website: http://reslife.wustl.edu/.

Federal Work Study

Students who have demonstrated financial need according to certain federally specified criteria may be eligible for support under the federally sponsored Federal Work Study program. Almost all positions in which graduate students may receive Federal Work Study support are teaching assistantships. Eligibility for Federal Work Study can only be determined by analysis of detailed financial information; students being considered for Federal Work Study support will be instructed how to provide the necessary information.

External Fellowships and Other Grants

First-year graduate students and graduating seniors interested in pursuing graduate study are encouraged to apply for federally funded fellowships, especially those offered by the National Science Foundation, the Environmental Protection Agency, and the Departments of Defense, Education, Energy, and Homeland Security. These awards may be taken to any recognized U.S. graduate school and offer general, long-term financial support for graduate study. Students should consult their current deans or academic advisors for application information and guidance concerning these competitions.

Many national, state, and local awards are available for graduate students doing dissertation research and writing their dissertations. Advanced graduate students are encouraged to consult their dissertation advisors and to use one or more of the external grant databases accessible through the Graduate School web site.

To encourage application for external fellowships and scholarships, substantial cash bonuses are offered to students who win external funding.

Loans

Loans, based upon academic standing and need, are available to students enrolled in graduate degree programs and are often a significant help in defraying the costs of graduate study. The University lends a limited amount of funds under the Perkins Direct Student Loan Program. Stafford subsidized and unsubsidized loans can be arranged for a larger number of graduate students. Applicants for all types of loans are required to submit both the Free Application for Federal Student Aid (FAFSA) and the Washington University Family Financial Profile (FFP). Graduate students are asked to contact the Graduate School of
Arts and Sciences for a complete application packet which will include the FAFSA and FFP and other important information. These materials are available by March 1 in the Graduate School Office. All application materials should be submitted by June 1 to help ensure that loan funds are available by the beginning of the fall semester.

Application for Financial Aid

Consideration of applicants for financial aid varies among the numerous graduate programs. Some departments and programs consider all applicants for admission also to be applicants for financial aid, unless applicants specify otherwise; those departments offer tuition remission and a stipend to all students offered admission. Other departments and programs, however, only consider for financial aid those who specifically request it. Although most financial aid decisions in the Graduate School are based primarily on merit and only secondarily on need, some programs require all aid applicants to provide detailed financial information in order that they may determine eligibility for various forms of support (such as Federal Work Study). Details of the policies of individual departments can be found in departmental supplements to this Bulletin, in supplementary information enclosed with the application for admission to Graduate School, or on departmental web sites.

Acceptance of an Award

Washington University, along with most other graduate schools in the United States, subscribes to the following resolution of the Council of Graduate Schools:

Acceptance of an offer of financial aid (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by an actual or prospective graduate student completes an agreement which both student and graduate school expect to honor. In those instances in which the student accepts the offer before April 15 and subsequently desires to withdraw, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organizations subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer.

The regular time for the announcement of awards by the Graduate School for the succeeding academic year is March 15. All applications received by the deadline will be considered for an award no later than March 15. Students to whom awards are offered are requested to give notice in writing of the acceptance or rejection of March 15 awards not later than April 15. Students to whom awards are made after April 1 are asked to reply within two weeks of receipt of the notice. In the absence of a reply by the indicated reply date, awards are not automatically held open. Requests for extensions on reply times or for reinstatement of withdrawn offers should be addressed to the Dean of the Graduate School.
WASHINGTON UNIVERSITY FINANCIAL AWARDS

Scholarships, Fellowships, and Traineeships Awarded by the Graduate School and Academic Departments, without applications by prospective recipients:

- Evan Frankel Fellowships (History)
- Lynne Cooper Harvey Fellowships (AMCS)
- Otto Heller Fellowships (German)
- Otto Heller Fellowships in the Humanities
- Arthur L. Hughes Fellowships (Physics) Irene Lichter Fellowships (French)
- McDonnell Graduate Fellowships (Space Sciences)
- McDonnell Fellowships (Philosophy-Neuroscience-Psychology)
- J.S. Mill Fellowships (Economics)
- National Institute of Aging Traineeships (Psychology)
- National Institutes of Health Traineeships (Division of Biology and Biomedical Sciences)
- National Need Fellowships (Biology, Chemistry, Mathematics and Physics)
- Annette Neumetzger Scholarships (Jewish Studies)
- Nipher Fellowships (Physics)
- Frederick and Anna May L. Nussbaum Scholarships (Music)
- Reinhard Piper Fellowships (German)
- Rudner Fellowships (Philosophy)
- Howard A. Schneiderman Fellowships (Plant Biology; Evolution, Ecology and Population Biology)
- Egon Schwarz Fellowships (German)
- Schwartz Graduate Scholarships (CNISS)
- Steinberg Fellowships (Art History)
- Tolman Geoscience Fellowships (Earth and Planetary Sciences)
- Herbert A. Wheeler Fellowships (Chemistry and Earth Sciences)
- Roma B. Wittcoff Scholarships (Social Work)

Scholarships and Fellowships Awarded by the Graduate School, without application by prospective recipients:

- Grace Bergner Abrams Scholarships
- Jessie Barr Fellowships (for women)
- Johan Egilsrud Memorial Scholarships
- Otto Gansow Scholarships
- Joseph W. and Kate Abbey Givens Fellowships
- Henrietta Heermans Scholarships & Fellowships
- Eliza McMillan Fellowships
- Morris B. Rettner Scholarships
- Helene Schuller Scholarships
- Van Blarcom Fellowships
- Washington University Fellowships and Scholarships

Fellowships Awarded by Competition, after application by prospective recipients:

- Chancellor's Graduate Fellowship
- Mr. and Mrs. Spencer T. Olin Fellowship for Women
Academic Requirements

GENERAL REQUIREMENTS

Courses of Instruction

The courses of graduate instruction approved by the Faculty of Arts and Sciences are listed in this Bulletin. More detailed descriptions of course content are in most cases available from individual departments or administrative committees. Current course offerings are listed and described in a separate publication titled Course Listings, which appears twice annually, in the spring for courses to be offered in the following fall and in the fall for courses to be offered in the following spring.

Courses numbered in the 400 series ordinarily are open to both graduate and undergraduate students; those in the 500 series and above ordinarily are open only to graduate students. Courses numbered 100-399 are designed for undergraduate students. These courses may be taken by graduate students only if they are directly related to their programs of advanced study and form a necessary background. When these conditions apply, they will be offered to graduate students, but they may not ordinarily be counted for credit toward a graduate degree, and they are not covered by tuition scholarships unless approved by the Dean of the Graduate School.

Academic Credit and Student Programs

The unit of academic credit is the semester hour. Full-time students, by ordinary definition, enroll for 9-12 units each semester. However, continuing research past the completion of required coursework and writing the master’s thesis or doctoral dissertation are two circumstances in which students customarily maintain full-time status without being enrolled for credit hours. A student’s receipt of financial support from the University is generally contingent upon maintaining full-time student status. Such maintenance of full-time status is accomplished by registering for the continuing student fee.

Student programs of study are planned with an advisor and are subject to the concurrence of the department or administrative committee and the Graduate School. Individual programs of study may differ for different students in the same discipline and year, in order to accommodate students’ differing backgrounds and interests.

Foreign Language Requirements

Foreign language requirements for the degrees granted by the Graduate School of Arts and Sciences are determined by each department or program according to the intellectual demands of the field of study. Applicants for these degrees, therefore, are advised to consult the department or program in which they plan to enroll regarding foreign language competence.

Calendar for Completing Advanced Degrees

Students enrolled in Master of Arts degree programs have three calendar years from the date of first registration in the Graduate
School of Arts and Sciences to complete their studies. Students in doctoral programs have seven calendar years dated from the time of first registration in the Graduate School to complete degree requirements. Extension of the period of doctoral study may be granted on an annual basis if the student has been continuously engaged in the field in which the degree is to be taken and if evidence of progress toward the completion of degree requirements can be provided. Extensions are obtained by application by the student, endorsement by the chair of the department or administrative committee, and concurrence by the Graduate School.

Statement of Intent to Graduate

It is the student’s responsibility to submit an Intent to Graduate Form by a specified date to be considered for degree conferral. The Intent to Graduate Form is available online at WebSTAC; paper copies are available from the Office of Student Records. Students must complete their Intent at the start of their final semester of study.

The deadline for filing an Intent to Graduate Form is indicated on the University calendar printed in the Course Listings, or may be obtained by contacting the Office of Student Records.

No degree will be awarded if this form has not been filed. Not completing degree requirements by one graduation date obligates the student to file a new Intent for the next graduation date.

A.M. AND PH.D. REQUIREMENTS

The requirements stated below are the minimum and should be read in conjunction with additional requirements specified in the program listings appearing in this Bulletin and/or in supplementary materials available from departments or programs. The section of this Bulletin entitled “Satisfactory Academic Progress” should be consulted as well. For master’s degrees other than the A.M. (such as the Master of Arts in Education, Master of Arts in Teaching, Master of Fine Arts in Writing, Master of Liberal Arts, and Master of Music), requirements are found in the program listings in this Bulletin.

Master of Arts (A.M.)

The nature of the Master of Arts degree varies with the student’s background and interests, and with the field of study. In some departments and programs and for some students, the A.M. is a terminal degree; in other instances it is a step toward the doctorate. Still other departments do not ordinarily admit students who express interest in studying for the A.M. degree only. Students are advised to take account of these differences in making application for admission and in planning their programs of study. In a typical program the satisfactory completion of a minimum of 24 semester units of graduate studies, the preparation of an acceptable thesis, and the successful defense of the thesis before a committee of no fewer than three faculty members are construed as fulfilling both the residence and academic requirements for the A.M. degree with thesis.
Residence Requirement
The residence requirement for the A.M. degree for students who have met all admissions requirements is one full academic year (a minimum of 18 semester units) of study.

Thesis
The thesis topic is subject to approval by the academic advisor and two additional members of the department (these three comprise the Research Advisory Committee), and by the chair of the department or administrative committee. It should be registered in the Graduate School by submitting the Title, Scope, and Procedure Form at least six calendar months before the date of the thesis examination. A Master's Thesis Guide, which gives instructions regarding the format of the thesis, is available in the Graduate School office and as a .pdf on the Graduate School website; it should be read carefully at every stage of thesis preparation. Following the thesis examination, three copies of the approved thesis in final form should be turned in to the Graduate School. These must be accompanied by a thesis approval form signed by members of the Research Advisory Committee and by the chair of the department or administrative committee. One copy of the thesis is deposited in Olin Library after binding; the other two bound copies are sent to the student’s department. One copy is for the student, the other for the department library or other appropriate permanent depository in the departmental offices.

Non-thesis Option
In most A.M. programs, the student may, with the approval of the department chair or program director, elect to take the degree of Master of Arts without submitting a thesis. This plan entails a minimum of 30 semester units of formal coursework, an examination which tests competence in the field of study, and evidence offered in seminars or independent study projects of a capability for scholarly research and analysis equivalent to that required for the A.M. thesis.

Combined A.B.-A.M. Degree Program
The A.B.-A.M. program establishes procedures whereby exceptional undergraduates already enrolled in the College of Arts and Sciences at Washington University may complete the requirements for the A.B. and A.M. degrees simultaneously. It is available to students of high ability who have decided on a major field early in their college careers and who entered with substantial college credit through AP or prior study, or normally enroll in 18 or more units a semester and perform well, or plan to attend summer school each year. Such students may be eligible to complete a master’s, as well as a bachelor’s, degree in their major field within four years or a little more.

Not all fields of study offer the Combined Degree. In some disciplines, specialized demands virtually preclude simultaneous completion of both degrees. Hence participation in the combined program is not required of any department or academic area; each may elect to participate.

The program is designed for students able to work in their chosen fields at a serious, professional level. Consequently, applicants should exhibit academic performance represented by at least a B average (3.00) throughout their programs of study and, in courses within the major field or their prerequisites, no grade
lower than B-. A student in the College who has achieved these academic standards and completed 9 or more units of advanced (300 level or above) course work should consult with the major department as early as possible in the junior year. Only in exceptional cases will candidates be admitted to the A.B.-A.M. program after their fifth semester of study. If the department supports applying, the student should submit a completed Joint A.B./A.M. Program Application to the Assistant Registrar of the Graduate School. These application forms are available through the departments or from the Assistant Registrar.

**Combined B.S.-A.M. Degree Program**

University College administers a combined B.S./A.M. program designed for motivated, high-achieving students who wish to pursue rigorous and accelerated study leading to completion of both a Bachelor of Science degree awarded by University College and a Master of Arts degree awarded by the Graduate School of Arts and Sciences. This program mirrors the A.B./A.M. program described above. Applicants must have completed at least 60 undergraduate units with a B average (3.00) or higher; of these, at least 12 units must have been taken in University College, and at least 9 of those must be at the upper level (300-400).

Detailed requirements for a student’s Combined Degree will vary, depending on the congruence between the student’s undergraduate and graduate disciplines and on the master’s degree program’s specific requirements. Interested students should consult University College.

**Doctor of Philosophy (Ph.D.)**

The Doctor of Philosophy degree stands for mastery of a broad subject of learning, specialized knowledge of a field within this subject, development of critical analytic powers, and the ability to communicate knowledge and ideas to others. But it also implies demonstrated capacity for original scholarly work within that field. Hence it cannot be earned by formal course work alone, no matter how high the quality of that work; it also requires that the student present evidence of having completed an original study that extends or modifies a field of knowledge or leads to a significant reinterpretation of known work.

**Admission**

Students may be admitted to study for the Ph.D. degree directly from baccalaureate study, or after completing the A.M. or equivalent degree at Washington University, or after a period of graduate study at another recognized institution. Applicants who have undertaken graduate studies at other institutions, however, should take note of the sections of this Bulletin concerning the residence requirement and the transfer of academic credit.

**Residence Requirement**

The residence requirement for the Ph.D. degree is that during the satisfactory completion of 72 semester units, at least 48 semester units will be spent at Washington University. At least one academic year as a student taking full-time coursework (at least 9 units in the Fall followed by at least 9 units in the Spring) is necessary to meet the requirement, although departments and pro-
grams generally encourage the fulfillment of the entire residence requirement by full-time study. Any exceptions must be approved by the Dean of the Graduate School.

Qualifying Examinations

Progress toward the Ph.D. degree is contingent upon passing examinations variously called preliminary, qualifying, general, comprehensive, or major field exams. The qualifying process varies according to the department or program. In some departments and programs it includes a series of incremental, sequential, and cumulative examinations spaced at intervals of time. In other departments or programs the examinations are telescoped into a relatively short period. Qualifying papers take the place of examinations in some disciplines. The department or program assumes responsibility for notifying the Graduate School of the student’s successful completion of such requirements. While the time to degree varies from discipline to discipline, it is not the policy of the Graduate School to encourage, by financial awards or other means, the continuation of students who have met the residence requirements for the Ph.D. degree without passing the qualifying examinations.

Teaching Requirement

Ph.D. students must satisfy two formal teaching requirements, one at the basic level and the other at the advanced level. Students must accumulate at least fourteen hours of teaching experience at the basic level, communicating knowledge and/or transmitting skills to groups of lower-level students. At the advanced level, Ph.D. students must accumulate at least four hours of teaching experience, communicating ideas and research findings to groups of upper-level students, fellow graduate students, faculty, etc. For a better understanding of the general requirement, see the full text of “Graduate School-wide Teaching Requirement for Ph.D. Candidates” in the GradGuide or on the Graduate School web site; for discipline-specific guidelines on meeting the requirement, consult your department or program.

ABD Status

“ABD” (All But Dissertation) status testifies to full entry into the dissertation phase of study for the Ph.D. degree. Students attain ABD status only after filing the Title, Scope, and Procedure Form for the dissertation and completing all requirements for the Ph.D. other than the dissertation. Such status is prerequisite to certain teaching assignments in Summer School and University College as well as in day courses offered by some departments and programs; it is also required in order for students to receive any dissertation fellowship funded by the University and most externally funded dissertation fellowships.

The Dissertation

Each Ph.D. candidate, as evidence of mastery of a special field of knowledge and capacity for original, scholarly work, must present a dissertation for examination. The subject must be approved by a Research Advisory Committee consisting of at least three tenured or tenure-track faculty members. This committee is ordinarily chaired by the student’s major advisor and must have the approval of the Graduate School of Arts and Sciences. A Title, Scope, and Procedure Form for the dissertation must be registered
in the Graduate School at least six months in advance of the dissertation examination. A Doctoral Dissertation Guide, which gives instructions regarding the format of the dissertation, is available in the Graduate School office and as a .pdf on the Graduate School web site; it should be read carefully at every stage of dissertation preparation.

The Graduate Council adopted at its meeting on October 16, 1989, the following resolution establishing a framework of minimal requirements for doctoral dissertations:

“Dissertations presented in partial fulfillment of the requirements for a Washington University Ph.D. are to describe a significant advance in scholarly knowledge derived from a candidate’s original investigations. A dissertation may address separate research questions or lines of inquiry but must contain elements unifying the entire body of work. Dissertation authors are to be guided by the following rules:

1) A dissertation will include a review of background material placing in context the problem or problems under investigation.
2) A dissertation will include language that summarizes and discusses the principal contributions of the work as a whole.
3) A significant part of each dissertation must rest on independent research conducted by the candidate. Findings due primarily to others and collaborative work will be identified as such with the contributions of the candidate made clear.
4) If copies of papers authored or co-authored by the candidate are included within the dissertation, the aforementioned requirements on unifying elements and candidate contributions must be met.
5) Large data sets and other technical materials not ordinarily included in scholarly publications should be maintained in a readily accessible form and the dissertation should reference their availability.

When special circumstances dictate, exceptions to these rules may be granted upon approval by the candidate’s department or program and concurrence by the Dean of the Graduate School.

Individual programs of the Graduate School are encouraged by the Graduate Council to establish, within this framework, their own more specific guidelines and policies. In particular the Council realizes that disciplines have widely differing views on such matters as inclusion in a dissertation of reprints of published papers, format and depth for a background literature survey, and handling of data sets. Ph.D. candidates should therefore consult their home departments or programs at the outset of work on a dissertation.”

Dissertation Examination

Approval of the dissertation by the Research Advisory Committee is necessary to bring it to the final dissertation examination. The committee before which the student is examined normally consists of at least six tenured or tenure-track faculty members (four faculty members from the student’s major department together with at least two faculty members from other departments or schools of the University). It is appointed by the Dean of the Graduate School upon the request of the department chair or program director. The request, which should be received at least 15 days before the date of the scheduled dissertation
Examination, should be accompanied by 10 copies of the dissertation abstract and of the student’s curriculum vitae for distribution to members of the Dissertation Examination Committee. The chair of the Dissertation Examination Committee assumes responsibility for making the full text of the dissertation accessible to his or her committee colleagues for their review in advance of the examination. Faculty members and graduate students who are interested in the subject of the dissertation are normally welcome to attend the dissertation examination but may participate in the discussion only at the discretion of the examining committee chair. Though there is some variation among departments and programs, the dissertation examination ordinarily is concentrated upon the subject matter of the candidate’s dissertation and its relation to his or her field of specialization.

**Depositing and Publishing the Dissertation**

Following the dissertation examination, three copies of the dissertation in final form, plus accompanying paperwork, must be delivered to the Graduate School office. The first copy of the dissertation will be deposited in the library, a second deposited with the department or administrative committee, and a third returned to the author after binding. In cases where the doctoral degree has been co-sponsored by two administrative units of the University (e.g., Chinese and Comparative Literature or any program of the Division of Biology and Biomedical Sciences), four copies will be bound so that each sponsor may receive a bound copy. Arrangements for binding are made by the University. Required paperwork includes a microfilming agreement, a Dissertation Examination Approval Form signed by every member of the committee and the chair of the department or administrative committee, and exit surveys.

The University’s requirement of publication ordinarily is met by microfilming the dissertation, publishing the abstract in Dissertation Abstracts, and depositing the first copy of the dissertation in the University library. With the consent of the Research Advisory Committee, a student may instead present six copies of a personally authored, published work in fulfillment of the dissertation requirement, provided such published work meets the same standards of quality and procedures of approval that apply to unpublished dissertations.

**POLICIES AND PROCEDURES**

**Registration**

The fall and spring dates for the registration of students admitted to the Graduate School of Arts and Sciences are listed in the *Course Listing*. Instructions for on-line registration are distributed to all graduate students who were enrolled in the previous semester or who have been newly admitted. In order to register on line, each student must use a password, which is assigned by the Office of Student Records, and must be approved on line by his or her advisor. All online registrations will be subject to review and oversight by the Graduate School office.

Incoming students must submit a medical history, including immunizations, on line at the Student Health Services web site, http://shs.wustl.edu/forms.htm. Students who lack required
immunizations upon arrival at the university will be required to receive them and will be assessed the cost of their administration. Registration will not be considered complete until the medical history form has been received by Student Health Services.

Continuous registration is required. Not being registered in a timely manner for every semester may adversely affect a student’s status, financial support, loan deferments, health insurance, visa status, right to rent University-owned housing, etc. Students who have any questions or problems regarding registration should contact their department or administrative committee, or consult the Graduate School Registrar.

Students who do not register for two consecutive semesters will be considered candidates for termination. This will involve a careful review of the candidate’s academic record in the Graduate School of Arts and Sciences, to be followed by discussions with the student’s faculty. An appropriate warning letter will ensue.

Willful misrepresentation to gain admission to graduate study, breaches of academic integrity, failure to meet academic standards of performance, or acts flagrantly destructive of the welfare of the University community may cause cancellation of registration, in which case a prorated refund of any tuition paid may be requested.

Grades

Students may access their grades via WEBSTAC. Graduate students in Arts and Sciences are graded according to the following classifications: A, outstanding; B, good; C, conditional (an A, B, or C grade may be modified by a plus or minus); F, failure; S, satisfactory; I, incomplete. Units of instruction which carry a grade of F are not creditable toward the fulfillment of advanced degree requirements, nor are grades of C unless they are accompanied by an equal number of units carrying a grade of A. The mark of S is used only in dissertation research and other special courses where there is no feasible basis for comparison with the performance of other students past or present and, furthermore, when there is no sensible way to evaluate the student’s accomplishments against any recognized academic standard. The mark of I may become a permanent part of the student’s record after the lapse of one calendar year unless the department in which the mark was assigned requests an extension of time. A notation of N indicates that no grade was reported by the instructor. An X indicates that the final exam was not taken.

Arts and Sciences uses a 4-point scale for calculating grade point averages, with A = 4, B = 3, and C = 2. A plus adds .3 to the value of a grade, whereas a minus subtracts .3 from the value of a grade. While many considerations, in addition to grades, enter evaluations of academic progress, the Graduate School discourages the continuation of students with accumulations of grades indicative of unsatisfactory or uncompleted study, except where uncompleted study is due to the deferment of grades for dissertation research.

Audited Courses

Students who intend to audit a course for which they will not register for credit are required to obtain prior consent of the course instructor as well as permission from their own advisor. Tuition scholarships for audited courses are not available unless especially
approved by the Dean of the Graduate School. The student’s transcript will record the audit of a course only upon payment of the full course tuition charged to registered students.

A grade of L indicates a successful audit, and a grade of Z indicates an unsuccessful audit. Students should consult the course instructor as to the requirements for a successful audit. Audited courses do not affect students’ grade point averages, nor are they counted toward the credit-hour requirements for degrees.

**Transferred Credits**

A maximum of 6 semester units may ordinarily be transferred from an institution of recognized graduate standing toward fulfillment of requirements for the master’s degree from Washington University, except that a maximum of 15 semester units may be transferred toward fulfillment of the requirements for the degree Master of Arts in Education (M.A.Ed.) from institutions that have entered into special cooperative agreements with Washington University for this purpose. For the degree of Doctor of Philosophy the maximum credit ordinarily transferable is one full year of study (24 semester units). Applications to transfer credit ordinarily are not approved, however, for the master’s degree until one full semester of study (12 units) has been completed at Washington University or for the doctoral degree until one full year (24 units) has been completed. Academic credit applied to complete requirements for the bachelor’s degree is ordinarily not transferable toward the fulfillment of advanced degree requirements at Washington University. Likewise, academic credit applied to fulfill requirements for one advanced degree is ordinarily not transferrable toward the fulfillment of requirements for another degree of an equivalent or lower level.

**Summer School**

Washington University conducts a summer school in which study for advanced degrees is offered. The range and texture of summer offerings, however, vary greatly among departments and programs. Many advanced students use the summer for projects of independent study and research, although others enroll in departments or programs which integrate a summer schedule of courses with that of the academic year. Notwithstanding the differences among students, departments, and programs, however, no student should apply for admission to the Graduate School of Arts and Sciences with the expectation of completing degree requirements at the master’s or doctoral level solely by summer study.

Summer school registration is available only on line at http://ucollege.wustl.edu/summersc. Summer programs of study for graduate students are subject to approval by their academic advisor and concurrence by the Dean of the Graduate School. Tuition remission may be available for such approved coursework.

**University College**

University College, the evening division of the Faculty of Arts and Sciences, administers seven part-time graduate programs leading to master’s degrees conferred by the Graduate School: the Master of Arts (A.M.) in American Culture Studies, Biology, Human Resources Management, International Affairs, and Nonprofit Management; the Master of Arts in Education (M.A.Ed.); and the Master of Liberal Arts (M.L.A.). Full-time
students in the Graduate School who wish to take graduate courses offered in University College for credit toward their degree programs must obtain the approval of their academic advisor and the concurrence of the Dean of the Graduate School. Tuition remission may be available for such approved coursework.

**Satisfactory Academic Progress**

Satisfactory academic progress for students in the Graduate School is monitored jointly at the end of each academic year by the Graduate School and the department or administrative committee. Failure of a student to maintain satisfactory academic progress may result in immediate dismissal of the student from the Graduate School or in placement of the student on academic probation for the ensuing year. Most financial awards, including every financial award involving federal funds available through Title IV of the Higher Education Act (e.g., the Federal Work Study and federal loan programs), are contingent on the maintenance of satisfactory academic progress. Moreover, satisfactory academic progress is a prerequisite for service on any committee sanctioned by the Graduate School.

The department or program in which a student is enrolled monitors progress of the student toward completion of the individual degree requirements imposed by that department or program. Examples of such requirements may include, but are not limited to, passage of foreign language examinations, passage of qualifying or comprehensive examinations, satisfactory performance in research or teaching practice, and satisfactory performance in thesis or dissertation research.

The following are minimal standards of academic progress for all students enrolled in degree programs of the Graduate School: (1) Students are expected to proceed at a pace appropriate to enable them to finish within the time limits discussed in the section of this Bulletin titled “Calendar for Completing Advanced Degrees.” In particular, students engaged full-time in coursework are expected to complete satisfactorily, on the average, at least 12 approved course units per academic year. By the end of the second year of full-time graduate study, students are expected to have completed those requirements and evaluations which programs have identified as necessary for all prospective Ph.D. students at this stage. By the end of the fourth year of full-time graduate study, students are expected to have attained ABD Status, or to have completed all Ph.D. requirements with the exception of the dissertation and any dissertation research units needed to fulfill the Graduate School’s 72-unit coursework requirement. (2) Students are expected to maintain a cumulative grade point average of at least 3.0 on a 4.0 scale in courses approved for their degree programs. Thus, among courses of equal weight, each grade of C must be balanced by at least one A. (3) Students are expected to maintain no more than 9 outstanding units in which the grades of I (incomplete) or N (no grade) are recorded. The Graduate School may deny a student permission to register for further courses, if that student has more than 9 units of outstanding unfinished coursework. (4) After four years of full-time graduate study, doctoral students who cannot identify three faculty members who are willing to serve on their Research Advisory Committee are not considered to be making satisfactory academic progress.
Exceptions to these minimal standards may be granted only upon recommendation of the department chair or program director, and approval by the Dean of the Graduate School.

**Changes in Program of Study**

Students ordinarily are admitted to the Graduate School of Arts and Sciences to study in specific fields and for specific degrees. Therefore, a change in the degree objective (e.g., from A.M. to Ph.D.) is subject to the approval of the student's major department or program committee and the Graduate School. A request for a change in the subject of study (e.g., from Economics to History) requires the concurrence of both departments concerned as well as of the Graduate School.

**Leaves of Absence**

Students who wish to suspend their graduate study may apply through their departments for a leave of absence. A student’s application for a leave of absence must be endorsed by the department or administrative committee, and then granted by the Graduate School. Such a leave may be medical, in which case the student must present medical authorization at the beginning and again at the end of the leave, or personal. Students on medical leave, unlike students on personal leave, may continue their student health insurance coverage at their own cost. At the end of a leave of absence, a student is reinstated into the Graduate School under the conditions prevailing at the time the leave was granted. Students who have completed one year of graduate study and subsequently take a leave continue to be assessed a non-resident fee each semester during the leave of absence. Leave status is a suspension of full-time student status and therefore may adversely affect loan deferment, visa status, the right to rent University-owned housing, etc. Also, students on leave are not eligible for financial support from the University.

**New Child Leave**

Full-time graduate students in Arts and Sciences may take a new child leave, provided that they will serve as the new child's primary caregiver and have the approval of their department or administrative committee. Unlike the leaves of absence discussed above, new child leave does not affect the student's full-time status. A student taking new child leave registers for at least nine units of course work (such as independent studies) or for the continuing student fee. Stipend payments are available for the first 34 working days that a student is on new child leave; students may request permission to continue on new child leave without pay for up to eight more weeks. To whatever extent is possible, a new child leave's beginning and ending dates should coincide with those of the academic term (fall, spring, or summer).

**Award of Degrees, Diplomas, and Transcripts**

University Commencement ceremonies are held in the spring and mark the end of the academic year. Advanced degrees, however, are awarded three times each year, in August, December, and May. The terminal dates for completing all advanced degree requirements, including the deposit of theses and dissertations, in
time to receive summer, fall, or spring degrees, are listed in the academic calendar. The annual Commencement proceedings include a special Graduate School Hooding and Recognition Ceremony. All candidates who complete advanced degrees during the preceding twelve months are invited and encouraged to participate. A candidate who has completed all requirements for an advanced degree and needs certification of this fact before the date of the award, for employment or other reasons, may secure a letter of certification from the Assistant Registrar of the Graduate School; a written request is required.

Except for students who earn May degrees and receive their diplomas at Commencement, diplomas are mailed by the Office of Student Records to the address indicated on the Intent to Graduate Form. Official transcripts on which courses, grades, and awards of advanced degrees are recorded are issued by the Office of Student Records, free upon request by the student. Information regarding these and other services may be found on the web site of the Office of Student Records, http://aisweb.wustl.edu/studentrecords/home.nsf

**Academic Integrity Policy**

In 1991 the Graduate Council adopted an academic integrity policy; a revision of that policy was approved by the Graduate Council in 1995. A booklet titled “Academic Integrity Policy for Graduate Students in Arts and Sciences” is distributed to new students and is abridged below. Its full text is available on the Graduate School web site.

The Academic Integrity Policy is meant to safeguard and enhance the educational process that already exists in the departments. Students are here to learn not only academic information and techniques but also the rules of appropriate conduct; not learning such rules is as deleterious to academic advancement as not acquiring standard academic credentials. There may regretfully be cases where active misconduct, rather than minor procedural error, appears to be an issue, and it is for such cases that guidelines detailed in this document have been established. Both faculty and students should familiarize themselves with the Academic Integrity Policy, for it will be followed in all cases of doubt.

Offenses which constitute integrity violations and which are spelled out in the booklet include falsification of data; plagiarism; abuse of confidentiality; dishonesty in publication; violation of certain regulations; certain property violations; and cheating. Deliberate violation of regulations and property violations may alternatively be deemed to be violations of the University Judicial Code, and prosecuted as such.

**Procedures for Dealing with Cases of Academic Integrity Violations**

Individual faculty members, departments or students should not attempt to adjudicate charges of integrity or Judicial Code violations at the course or departmental level. Instead, in the interest of providing consistent, prompt consideration and resolution of allegations of academic integrity infractions, the procedures outlined below should be followed in each instance of an alleged violation of academic integrity by a student enrolled in the Graduate School.
Charges of integrity violations must be filed in writing with the Associate Dean of the Graduate School of Arts and Sciences by a faculty member, member of the administration, or another student.

The Associate Dean will consider the merits of the charge and, if it appears to warrant further investigation, will inform the student about the alleged infraction. The Washington University Executive Vice Chancellor and Dean of Arts and Sciences will also be informed, and asked to determine whether additional proceedings are required, or whether any should take precedence over the Graduate School’s proceedings.

Should the student agree with the facts presented in the charge and furthermore agree that he or she has committed a violation of academic integrity, the student may admit guilt, thus waiving his or her right to a hearing, and agreeing to abide by disciplinary penalties imposed by the Dean of the Graduate School. In every other instance, however, the charge will be remanded to the Academic Integrity Committee of the Graduate Council for further investigation and hearing.

The Academic Integrity Committee will convene a hearing where the accused and the accuser will present evidence. Each party must present his or her case. Each may be assisted by no more than two aides. These aides may be expert in the pertinent academic areas. In addition, the Committee may call witnesses at the suggestion of the accused or accuser. Upon notification of the hearing date, the accused and the accuser will be issued a set of rules governing the proceeding.

The Academic Integrity Committee is composed of 4 members of the Graduate Council Executive Committee (two student and two faculty members). These are selected by the chair of the Executive Committee, who ordinarily presides at the hearing. The Executive Committee is elected each year by the Graduate Council.

After the hearing, the Academic Integrity Committee will deliberate and reach a finding. A majority (three members) is needed to sustain a charge. A tie vote will indicate that the charge has not been proven and is therefore rejected.

Should the Committee sustain an integrity violation charge, it will proceed to recommend appropriate disciplinary action to the Dean of the Graduate School. Such action will be drawn from a range of established penalties which could include, but are not restricted to, the assignment of a failing grade, the revocation of a fellowship or assistantship, or a recommendation for suspension or expulsion from the Graduate School of Arts and Sciences.

The Dean of the Graduate School will review the Committee’s findings and recommendations. In the instance of a sustained charge the Dean will decide the appropriate penalty. The decision of the Dean is final with respect to all penalties except suspension or expulsion. Other pertinent information will be communicated in writing to the accused and accuser, as well as to the Chair of the Academic Integrity Committee. Other individuals who serve in an
administrative or advisory capacity will also be informed, on a “need to know” basis in compliance with the Family Educational Rights and Privacy Act (FERPA) regulations.

Students found guilty of an integrity violation which results in suspension or expulsion by the Dean have 14 days from issuance of the Dean’s letter to file a written appeal with the Executive Vice Chancellor and Dean of Arts and Sciences. Upon appeal, the decision of the Executive Vice Chancellor and Dean of Arts and Sciences is final.

Access to Student Academic Record

In accordance with Section 99.3 of the Family Educational Rights and Privacy Act of 1974, a student’s academic record as assembled by the Graduate School office and kept in the general files may be reviewed by the student upon written request. The Dean of the Graduate School will review petitions to amend a student’s record.

All persons other than the student, the academic advisors, and the personnel of the Graduate School office in pursuance of their normal work assignments are denied access to student records. Potentially valid requests for access (e.g., by police officers or federal agents) are referred to the General Counsel’s Office and/or the Office of Student Records if they are not accompanied by a signed release from the student.

Student Complaint Procedures

From time to time, students may feel that they have legitimate complaints regarding academic matters or the behavior of a faculty member. It is important that students and faculty have a common understanding of how such complaints may be expressed and resolved. Students with complaints regarding academic matters should initially seek resolution from members of the faculty, the graduate studies director of their program, and/or the chair of their department or administrative committee. Complaints which are not resolved at the departmental level may be addressed to the Ombudsman, who is a full-time faculty member in Arts and Sciences. Complaints regarding academic integrity issues should be addressed to the Associate Dean of the Graduate School.

Washington University policies state that members of the University community can expect to be free from discrimination, discriminatory harassment, and sexual harassment. Students, faculty, staff, and outside organizations working on campus are urged to actively support these policies. More information is available from the University’s web site, www.wustl.edu/policies. The Deans of the Graduate School also serve as liaisons to graduate students.

A complaint on the grounds of alleged sexual discrimination may be appealed to the Vice Chancellor for Human Resources, who will determine whether to convene the Title IX Grievance Committee to hear the case.

Time Off for Graduate Students Who Are Engaged in Research

The Graduate Council approved the following policy in 2002: “Students working toward Arts and Sciences graduate degrees are entitled to all official University holidays. (To the extent that
responsibilities essential to the maintenance of research, such as replenishing liquid nitrogen stocks or feeding laboratory animals, must be done on University holidays, graduate students may be required to share in this responsibility.) Supervisors should approve other planned absences, and unplanned absences should be reported to them. ‘Supervisors’ in the graduate years are Program Directors, and Research Rotation or Dissertation Advisors, as appropriate. The total amount of excused absence should be consistent with that of academic employees in the same area. (Assistantship or stipend payments are generally not subject to reduction as they represent agreed-upon financial aid; however, a student whose absences interfere with academic responsibilities may have his or her assistantship or stipend reduced or eliminated.) Decisions regarding the granting of time off will not be based upon the existence of or source(s) of funding. The Program Director or Department Chair should address disagreements between supervisors and students over absences. If the Director or Chair cannot resolve the dispute, the Dean of the Graduate School of Arts and Sciences, or his designee, will serve as the final arbiter.’

INTERDISCIPLINARY AND PEDAGOGICAL OPPORTUNITIES

Interdisciplinary Studies Degrees

Students registered in the Graduate School ordinarily study for specific degrees in specific fields. The number of departments and other administrative units offering advanced degree studies, their flexibility, and the range of specializations possible in each make the Graduate School exceedingly rich in regularly organized curricula. In unusual cases, however, regularly admitted students who have completed a master’s degree or 24 units for a doctoral degree in the Graduate School may request that the Dean appoint, upon the advice of the chairs of relevant departments or administrative committees, an ad hoc committee of at least three members to plan and administer a program of studies not regularly available. Such special programs must conform to the provisions stated in the section of this Bulletin titled “A.M. and Ph.D. Requirements.” One can by such means earn a Doctor of Philosophy in Interdisciplinary Studies; a note as to the focus of the student’s program of study may be requested to appear on the transcript.

Certificate Programs

Another means of interdisciplinary study is the addition of a graduate certificate to a Ph.D. program. The graduate certificate programs administered by the Graduate School of Arts and Sciences require 15-18 credit units, of which at least 9 units are usually in addition to the unit requirements for the major degree. Of these graduate certificates, four are offered by interdisciplinary programs or centers: American Culture Studies, International Studies, New Institutional Social Sciences, and Women and Gender Studies. Two other certificates, Language Instruction and Teaching of College Writing concentrate on pedagogical skills; these are offered by the Department of Romance Languages and the Department of English and American Literature, respectively, but are open to qualified students from other departments’ Ph.D. programs.
Other Interdisciplinary Options

As certain combinations of subject matter have attracted a number of students, standing committees of faculty drawn from the relevant departments and schools have come into existence to help students accomplish interdisciplinary goals. The largest such committee is responsible for the Division of Biology and Biomedical Sciences, which is a joint program of the Graduate School of Arts and Sciences and the School of Medicine and which permits students to work toward a Ph.D. in any of twelve programs. Nine other doctoral programs, five graduate certificates, and nine master's degrees are offered by similar administrative committees, which draw together faculty from different disciplines. Moreover, many of the Centers listed in this Bulletin’s section on “Facilities for Advanced Studies and Research” facilitate the taking of classes across department or even school lines. Students wishing to explore these opportunities should consult the Director of Graduate Studies in their own program of study.

Joint Degree Programs

Throughout the University, programs permitting students to earn two graduate and/or professional degrees at the same time are possible. Three such joint degree programs extend the opportunity to earn a Master of Arts or a Doctor of Philosophy to students in the School of Medicine; these are described more fully below. The Committee on East Asian Studies offers its interdisciplinary Master of Arts alone or in conjunction with either the Master of Business Administration or the Juris Doctor; these joint degree programs are described more fully in the East Asian Studies listing in this Bulletin. Students wishing to earn two degrees that do not yet have such formal administrative arrangements are encouraged to consult administrators within the desired degree areas, who might arrange a program for them.

Master's Program for Medical Students (M.D./A.M.)

The program is designed to allow a select group of medical students to have an in-depth research experience and thereby earn a Master of Arts in Biological Sciences. First-, second-, and third-year medical students are eligible for this program of individualized tutorials and research, culminating in a thesis. No formal course work is required of these students; appropriate credits will be transferred from the student’s medical school curriculum. The School of Medicine will not accept this year in lieu of a fourth year of medical school.

Doctor of Philosophy and Doctor of Medicine Concurrent Degrees (M.D./Ph.D.)

The Doctor of Philosophy and Doctor of Medicine degrees are awarded concurrently at the successful conclusion of study in the Medical Scientist Training Program. The Medical Scientist Training Program offers in-depth study in related academic disciplines to selected students during their time in medical school. It has the aim of preparing scientists for membership in preclinical and clinical faculties of medicine. Applicants to the Medical Scientist Training Program must meet all standards for admission to both the School of Medicine
and the Graduate School of Arts and Sciences. Six to eight years are necessary to fulfill all requirements for both the M.D. and the Ph.D. degree. Application is made on special forms available from the Office of Academic Records and Admissions of the School of Medicine. For a detailed explanation of the Medical Scientist Training Program, reference should be made to the Bulletin of the School of Medicine of Washington University.

**Doctor of Physical Therapy and Doctor of Philosophy Sequential Degrees (DPT/Ph.D.)**

The Doctor of Physical Therapy, one of the clinical doctorates offered by the School of Medicine, and the Graduate School’s Doctor of Philosophy in Movement Science may be earned sequentially (first the DPT, then the Ph.D.) in an expeditious manner if students apply to both at the same time. For a detailed explanation of this degree sequence, consult the web site of the School of Medicine’s Program in Physical Therapy.

**Pedagogical Opportunities**

The preparation of teachers is regarded by all programs of study as an important function. As noted above, there is a teaching requirement for Ph.D. students across the disciplines; many departments have additional teaching requirements for their students. Every Arts and Sciences department or administrative committee is expected to serve as the primary source of training for its Teaching Assistants, supervising and evaluating their work as well as offering them discipline-specific instruction in pedagogy. The Graduate School and the Teaching Center provide additional resources for graduate students, beginning with the TA Orientation and continuing through the opportunity to earn a Teaching Citation (below). In addition, as noted above, two of the graduate certificate programs – College Writing and Language Instruction – are pedagogical in nature.

Graduate students planning to teach in a secondary school may be eligible to participate in the Teacher Internship Program, which is administered cooperatively by the Graduate School and nearby secondary schools. Students interested in elementary education are advised to consult the Department of Education, whether or not they wish to obtain certification.

**Teaching Citation**

The Graduate School and the Teaching Center jointly administer the Teaching Citation program. Award of the Teaching Citation is contingent on satisfactory completion of all departmental teaching requirements and the Graduate School-wide Teaching Requirement, as well as Teaching Citation requirements. These include participation in workshops, varied teaching experiences, written evaluation of the student’s teaching, and development of a teaching philosophy. The Teaching Citation is awarded concurrently with the Ph.D. and appears on the student’s transcript.
Policy, Programmatic, and Curricular Changes

This Bulletin is published to serve as a general guide to the programs and policies of the Graduate School of Arts and Sciences at Washington University and does not guarantee that classes, courses, or programs set out herein will be offered. The Graduate School of Arts and Sciences reserves the right to cancel programs for a variety of reasons but especially because of low enrollment or decreased budget. In addition, the Graduate School reserves the right to change its policies, programs, and curriculum without prior notice.

Up-to-date information is available by emailing graduateschool@artsci.wustl.edu, phoning 314-935-6880, writing to Graduate School of Arts and Sciences, Campus Box 1187, Washington University, One Brookings Drive, St. Louis, MO 63130-4899, or consulting the Graduate School’s web site, http://artsci.wustl.edu/GSAS.

This issue of the Bulletin of the Graduate School of Arts and Sciences was edited in July 2006 by Associate Dean Nancy P. Pope.
Degrees and Certificates Offered

MASTER'S PROGRAMS

Master of Arts (A.M.)
- American Culture Studies *
- Anthropology
- Art History and Archaeology
- Biology *
- Chemistry
- Chinese Language and Literature
- Classics
- Comparative Literature
- Drama
- Earth and Planetary Sciences
- East Asian Studies
- Economics
- English and American Literature
- French
- Germanic Languages and Literatures
- History
- Human Resources Management *
- International Affairs *
- Islamic and Near Eastern Studies
- Japanese Language and Literature
- Jewish Studies
- Mathematics
- Music
- Nonprofit Management *
- Philosophy
- Physics
- Political Economy and Public Policy
- Political Science
- Psychology
- Spanish
- Statistics

Master of Arts in Education (M.A.Ed.) **

Master of Arts in Teaching (M.A.T.)

Master of Fine Arts in Writing (M.F.A.)

Master of Liberal Arts (M.L.A.) *

Master of Music (M.M.)

* Administered by University College
** Administered by University College for part-time students; administered by the Graduate School for full-time students
JOINT DEGREE PROGRAMS
Combined A.B./A.M. Degree Program
Combined B.S./A.M. Degree Program
Business and East Asian Studies (M.B.A./A.M.)
Law and East Asian Studies (J.D./A.M)
Medical Scientist Training Program (M.D./Ph.D.)
Medical and Biological Sciences (M.D./M.A.)
Physical Therapy and Movement Science (DPT/Ph.D.)

DOCTOR OF PHILOSOPHY (Ph.D.)
Anthropology
Art History and Archaeology
Biology and Biomedical Sciences
  Biochemistry
  Computational Biology
  Developmental Biology
  Evolution, Ecology and Population Biology
  Immunology
  Molecular Biophysics
  Molecular Cell Biology
  Molecular Genetics
  Molecular Microbiology and Microbial Pathogenesis
  Neurosciences
  Plant Biology
  Quantitative Human and Statistical Genetics
Business Administration
Chemistry
Chinese and Comparative Literature
Comparative Literature
Earth and Planetary Sciences
Economics
Education
English and American Literature
English and Comparative Literature
French and Comparative Literature
French Language and Literature
Germanic Languages and Literatures
German and Comparative Literature
Hispanic Languages and Literatures
History
Japanese and Comparative Literature
Mathematics
Movement Science
Music
Philosophy
Philosophy-Neuroscience-Psychology
Physics
Political Science
Psychology
Social Work
Spanish and Comparative Literature
Speech and Hearing Sciences
CERTIFICATE PROGRAMS

American Culture Studies
Human Resources Management *
Language Instruction
New Institutional Social Sciences
Teaching of College Writing
Women and Gender Studies

* Administered by University College
American Culture Studies

The Master of Arts in American Culture Studies draws on the resources of the Faculty of Arts and Sciences at Washington University and surrounding cultural institutions to provide an interdisciplinary study of American literature, history, politics, religion, philosophy, art, music, film, theatre, business, and society. Administered jointly by the Graduate School of Arts and Sciences and University College, this part-time graduate program is designed to serve adult students including secondary school teachers and others with an interest in American culture. Courses normally are offered once a week in the late afternoon or evening.

Admission to the A.M. degree program is open to qualified adults who are at least two years beyond the baccalaureate degree from an accredited institution of higher learning and have a background in one of the disciplines represented in the American Culture Studies program. Applicants must submit all application materials of the Graduate School of Arts and Sciences including a statement of purpose describing their interest in the program, a $35 non-refundable application fee, and a writing sample. An interview is strongly recommended. Successful applicants must have a strong undergraduate or previous graduate record, strong writing and analytical skills, and a clear understanding of their reasons for pursuing this interdisciplinary program. Qualified applicants are initially admitted to University College. Full admission to the Graduate School as a degree candidate requires satisfactory completion of at least two American Studies courses and the recommendation of the program director and faculty members with whom the student studies.

Minimum requirements for the degree include satisfactory completion of 30 units of graduate-level course work related to American culture and institutions, to include the following: two courses in different disciplines from history, literature, and religion/philosophy; two courses in different disciplines from social thought and analysis, anthropology, political science, and business/economics; two courses in art history, music, or theatre/film; 9 additional units to reflect the particular interests of the student; a final three-unit project under the direction of a faculty mentor. Students also have the option of doing a final six-unit Master’s Thesis instead of a three-unit project. Two of the courses should address American culture prior to 1900, and it is strongly recommended that students include two courses that reflect the diversity of Americans and their culture.

Please contact University College (314) 935-6778 for more information.

Graduate Certificate Program

American Culture Studies offers a certificate program to students working towards the Ph.D. in a participating department. The purpose of this program is to provide exposure to a range of disciplines and methodologies to complement individual areas of specialization and to provide opportunities for collaboration in multi-disciplinary groups. Requirements consist of six courses outside the home department involving work in at least three different disciplines; two courses that are multi-disciplinary in design and, therefore, cross-listed by at least two departments; and AmCS 545, an introduction to multi-disciplinary methodologies.
Assistant Professors
Lisa Baldez
(Political Science)
Leslie Brown (History)
Garrett Duncan
(Education, African and Afro-American Studies)
Andrea Friedman
(History)
Margaret Gard (History)
Sukkoo Kim (Economics)
Paula Lupkin (School of Architecture)
Lester K. Spence (Political Science)
Conevery Valencius
(History)

Senior Lecturer
Helen Power (English)

Each year departments nominate graduate students to receive fellowships in American Culture Studies, an award that includes summer support for up to five years. As many as three awards will be made each year and are contingent upon participation in the certificate program. Other students pursuing the certificate will be eligible for support for summer course work as funding is available.
Anthropology

Graduate study leading to the Master of Arts and Doctor of Philosophy degrees in anthropology is governed by the regulations of the Graduate School as described in this Bulletin, and by the policies of the department set forth in “Requirements for Graduate Degrees in Anthropology” which is available at the department office.

A.M. degree.

The A.M. degree in anthropology is offered only to students in the Ph.D. program. The A.M. degrees in archaeology, socio-cultural and physical anthropology are based on successful completion of subdisciplinary requirements including a research paper. All A.M. students are required to demonstrate competency in one research language.

Ph.D. degree.

Each of the three major subdisciplines has specific requirements, in addition to the general university and anthropology requirements; a copy of these requirements for the relevant subdiscipline may be obtained from the departmental office. At the Ph.D. level, students will acquire training in an additional field or research language, or training in specific laboratory techniques relevant to the research training involved. Normally the student is expected to obtain some measure of teaching experience and skills, as determined by the department. Successful completion of both the disciplinary and subdisciplinary requirements will be necessary before the student may petition for advancement to candidacy.

For additional information, contact Kathleen Cook, Academic Coordinator, voice (314) 935-5271, FAX (314) 935-8535, email hkcook@artscl.wustl.edu
Anthro

401 ..... The Evolution of Non-Human Primates 3 units.
403 ..... Culture History of the Southwestern United States 3 units.
4041 ..... Islam and Politics 3 units.
4042 ..... Islam Across Cultures 3 units.
406 ..... Primate Ecology and Social Structure 3 units.
4112 ..... Body and Flesh: Theorizing Embodiment 3 units.
412 ..... Sociolinguistics: Ethnography of Communications 3 units.
4121 ..... Language and Power 3 units.
4122 ..... Language and Gender 3 units.
4123 ..... Argumentation Through Ethnography 3 units.
4124 ..... Language and Politics 3 units.
4134 ..... The AIDS Epidemic: Inequalities, Ethnography, and Ethics 3 units.
4179 ..... On Location: Exploring America 3 units.
4181 ..... Comparative Methods in Physical Anthropology 3 units.
4182 ..... Field and Laboratory Methods in Primatology 3 units.
419 ..... Primate Behavior 3 units.
4191 ..... Primate Cognition 3 units.
4192 ..... Comparative Juvenile Behavior 3 units.
4202 ..... Evolutionary Genetics 3 units.
4211 ..... Paleoethnobotany and Ethnobotany 3 units.
4212 ..... Advanced Methods in Paleoethnobotany 3 units.
4213 ..... Plants and American People: Past and Present 3 units.
4214 ..... The Archaeology of Food and Drink 3 units.
4221 ..... Biological Basis of Human Behavior 3 units.
4242 ..... Social Movements 3 units.
4253 ..... Researching Fertility, Mortality, and Migration 3 units.
4282 ..... Political Ecology 3 units.
4321 ..... History of Physical Anthropology 3 units.
4322 ..... Brave New Crops 3 units.
434 ..... Behavioral Research at the St. Louis Zoo 3 units.
4362 ..... Local Genders, Global Transformations 3 units.
4363 ..... Sex, Gender, and Power 3 units.
441 ..... Social Statistics 3 units. (Identical with Social Thought and Analysis 441)
442 ..... Social Statistics II 3 units.
4451 ..... Research Methods in Anthropology 3 units.
4466 ..... Religion and Media 3 units.
4481 ..... Writing Culture 3 units.
4492 ..... Anthropology of Nationalism 3 units.
4493 ..... Diasporas and Transnationalism 3 units.
4513 ..... Contemporary Issues in the Developing World 3 units. (Identical with African and Afro-American Studies 4513)
4517 ..... Anthropology and Development 3 units.
455 ..... Archaeological Research Techniques 3 units.
4561 ..... Ceramic Analysis 3 units.
4562 ..... Artifact Analysis: Mississippian Cultures 3 units.
458 ..... Craniofacial Biology 3 units.
4581 ..... Principles of Human Anatomy and Development 3 units.
459 ..... Human Osteology 3 units.
4591 ..... Human Functional Morphology 3 units.
4622 ..... Anthropological Demography: Theories, Methods, and Applications 3 units.
4661 ..... Historical Archaeology 3 units.
4662 ..... American Indian Societies, Cultures, and Values 3 units.
4682 ... Ethnoarchaeology 3 units.
472 ...... Social Theory and Anthropology 3 units.
4752 ... Practicing Archaeology 3 units.
4761 ... The Pleistocene Peopling of Eurasia 3 units.
4762 ... The Neanderthal Legacy 3 units.
477 ...... African Prehistory 3 units.
479 ...... Climate, Culture, and Human History 3 units.
4791 ... Archaeological Study of Social Complexity 3 units.
4802 ... Theories and Practice of Landscape Archaeology 3 units.
4803 ... Geographic Information Systems (GIS), Landscape, and Spatial Analysis I Archaeology 3 units.
481 ...... Zooarchaeology 3 units.
4881 ... Medicine and Anthropology 3 units.
4882 ... Anthropology and Public Health 3 units.
4883 ... The Political Economy of Health 3 units.
489 ...... Pathways to Domestication 3 units.
4892 ... Hunter-Gatherer Socio-Economic Variation 3 units. (Identical with Archaeology 4892)
4893 ... Pastoral Nomads of the Past 3 units.
500 ..... Independent Study 3 units.
5011 ... Methods: Proposal Writing 3 units.
5051 ... Historical Context of Archaeology 3 units.
5053 ... Theoretical Approaches in Archaeology 3 units.
5072 ... Issues in Human Evolution 3 units.
5073 ... Modern Human Origins and Diversity 3 units.
5074 ... Paleoanthropology 3 units.
508 ..... Seminar: Selected Topics in Physical Anthropology 3 units.
5143 ... National Narratives 3 units.
518 ..... Seminar: The Teaching of Anthropology 1-3 units.
521 ..... Seminar: Writing Anthropological Reports and Essays 3 units.
525 ..... Advanced Reading 3-6 units.
5283 ... Seminar: Agricultural Development in North America: East and West 3 units.
5362 ... Primates Phylogeny 3 units.
542 ..... Fundamentals of Archaeology 3 units.
543 ..... Fundamentals of Physical Anthropology 3 units.
544 ..... Fundamentals of Socio-Cultural Anthropology 3 units.
546 ..... The Rise of Civilization in the New World 3 units.
549 ..... Field Research 3-12 units.
550 ..... Thesis and Dissertation 3 – 9 units.
5621 ... Anthropology of Human Birth 3 units.
572 ...... Geochronology 3 units.
579 ..... Feast or Famine: Archaeology and Climate Change 3 units.
581 ...... Theorizing the Body 3 units.
Chair and Professor
William E. Wallace

Professors
Susan Rotroff
(Jarvis Thurston and
Mona Van Duhn
Professor of Humanities)
Angela Miller
Sarantis Symeonoglou
(E. Desmond Lee
Professor)

Associate Professors
Elizabeth Childs

Assistant Professors
Gwen Bennett
Paul Crenshaw
Rebecca deRoo
Alicia Walker

Adjunct Faculty
Brent Benjamin
James D. Burke
David Canradsen
Francesca Consagra
Sabine Eckmann
Sidney M. Goldstein
Michael Gunn
Paula Lupkin
Judith Mann
Cara L. McCarty
Eric Mumford
John W. Nunley
Philip Projer

E. Desmond Lee Professor
Emeritus
Mark S. Weil

Art History and Archaeology

The department offers the degrees of Master of Arts and Doctor of Philosophy. Applicants for admission to graduate study are normally expected to have completed 18 hours of undergraduate study in art history. However, the department welcomes applications from students with less background in art history who show strong preparation in such fields as history, literature, anthropology and Asian studies.

During the first semester, every student must demonstrate a reading knowledge of French, German or Italian (for western art history) or Chinese or Japanese (for Asian art history). Candidates for the Ph.D. degree are required to demonstrate reading proficiency in two foreign languages.

There are no required courses; students should work out an individualized plan of study in consultation with the graduate advisor or the faculty member/s within their area of interest. Masters' students may take a written examination upon completion of 30 hours of course work, or alternatively, may write a thesis, normally for six hours of credit, supervised by a member of the faculty.

Students must apply in writing to the faculty for admission to the Ph.D. program. Each candidate's studies are supervised by a committee of three faculty. Ph.D. students are expected to gain teaching experience within the department as part of their professional preparation (as teaching assistants or instructors). After sixty hours of course work, the Ph.D. committee conducts a comprehensive examination. A final public oral defense is held following successful completion of the dissertation.

More detailed descriptions of the programs and requirements are available on request from the department or at: http://www.artsci.wustl.edu/~artarch/index.html or by calling the department office at (314) 935-5270.

Art-Arch

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>400 .....</td>
<td>The American West: The Image in History</td>
<td>3 units.</td>
</tr>
<tr>
<td>(Identical with L52 ARCH400)</td>
<td></td>
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<tr>
<td>4041 ...</td>
<td>Connoisseurship and Museum Procedures</td>
<td>3 units.</td>
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<tr>
<td>(Identical with L10 Phil224)</td>
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<tr>
<td>4042 ...</td>
<td>Orazio and Artemisia Gentileschi</td>
<td>3 units.</td>
</tr>
<tr>
<td>4043 ...</td>
<td>Gallery Publication Seminar</td>
<td>3 units.</td>
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<tr>
<td>421 .....</td>
<td>Minoan and Mycenaean Archaeology</td>
<td>3 units.</td>
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<tr>
<td>(Identical with L48 Anthro 423)</td>
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<tr>
<td>4211 ...</td>
<td>A Tale of Two Cities: The Growth and Structure of Chicago</td>
<td>3 units.</td>
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<tr>
<td>(Identical with A46 ARCH 421L)</td>
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<tr>
<td>4212 ...</td>
<td>Modern Art in Exhibition: Museums and Beyond</td>
<td>3 units.</td>
</tr>
<tr>
<td>426 .....</td>
<td>Ancient Athens</td>
<td>3 units.</td>
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<tr>
<td>(Identical with L08 Classics 426)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4321 ...</td>
<td>Ancient Coins</td>
<td>3 units.</td>
</tr>
<tr>
<td>(Identical with L08 Classics 4321, L52 ARCH 4321)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4325 ...</td>
<td>The Parthenon</td>
<td>3 units.</td>
</tr>
<tr>
<td>(Identical with A46 Architecture 522B)</td>
<td></td>
<td></td>
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<tr>
<td>437 .....</td>
<td>Greek Sculpture</td>
<td>3 units.</td>
</tr>
<tr>
<td>(Identical with L52 ARCH 437, L08 Classics 437)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4371 ...</td>
<td>Greek and Roman Pottery</td>
<td>3 units. (Identical with L52 ARCH 4371, L08 Classics 4371)</td>
</tr>
</tbody>
</table>
438 ..... Ancient Painting 3 units.
4471 ... From Village to State in Ancient China 3 units.
4493 ... When Materials Become Media: Bronze, Silk, and Porcelain and the Production of East Asian Art 3 units. (Identical with L03 East Asia 4493, L04 Chinese 4492)
450 ..... Amsterdam in the Golden Age 3 units.
458 ..... Vermeer 3 units.
4611 ... Italian Artistic Theory & Biography 3 units.
4612 ... Drawings 3 units.
4613 ... Renaissance Patronage 3 units.
4614 ... Connoisseurship in Old Master Prints 3 units.
462 ..... Topics in Renaissance Art & Arch II 3 units. (Identical with L14 E Lit 461)
4624 ... Michelangelo 3 units. (Identical with Arch 475B, L95 Med-Ren 4624, Arch 4614)
4625 ... Venice 3 units.
4661 ... Manerism 3 units. (Identical with Medieval and Renaissance Studies 4661)
4662 ... Michelangelo the Architect 3 units. (Identical with Architecture 523B, Medieval-Renaissance 4662)
469 ..... Rembrandt van Rijn 3 units.
4670 ... Rembrandt as a Printmaker 3 units.
4721 ... American Art and Culture, 1945-1960 3 units. (Identical with L98 AMCS 472, U10 ArtArch 4721)
473 ..... Art and Culture in Fin-de-Siecle America 3 units. (Identical with L98 AMCS 473)
475 ..... The City in American Arts and Popular Culture, 1910-1940 3 units. (Identical with L98 AMCS 475)
4771 ... Gender in 19th Century Art 3 units. (Identical with American Cultural Studies 4771, Women's Studies 4771)
4776 ... Art and Culture in 1930's America 3 units. (Identical with American Cultural Studies 4776)
4781 ... Urban Landscapes and the Meanings: “Meet Me in St. Louis” 3 units. (Identical with Lit 471 ArtArch 460)
4785 ... Art and Culture in 1920's America 3 units. (Identical with American Cultural Studies 4785)
480 ..... History of Photography 3 units.
4816 ... Art and Culture in Fin-de-Siecle Europe 3 units.
482 ..... Picasso 3 units.
4840 ... Architecture in the Americas 3 units.
4854 ... Gauguin in Polynesia: The Late Career 3 units. Design credit 3 units.
4855 ... Contemporary Art in France 3 units. (Identical with L34 French 4855)
4861 ... Paul Gauguin in Context 3 units.
4863 ... The Photographic Muse: The Modern Artist and the Camera 3 units.
4864 ... Exoticism and Primitivism in Modern Art 3 units. (Identical with L97 IS 4864)
4866 ... Cold War Cultures: Art in the Former Germanies 3 units.
4888 ... The Presence of the Past: Contemporary German Art of the 1990's 3 units. (Identical with L21 German 4888)
4889 ... Reframing Feminist Art of the 1970's 3 units. (Identical with L77 WS 4889)
4911 ... Aesthetic Politics: Power, Art, and Modern Culture 3 units.
500 ..... Independent Work 6 credits maximum, to be arranged.
5010 ... Benjamin Remastered: From mechanical Reproduction to the Digital Divide 3 units.
541 ..... Problems in Twentieth Century Painting 3 units.
561 ..... Problems in Renaissance Art 3 units.
566 ..... Problems in Baroque Art 3 units.
576 ..... Problems in American Art 3 units.
581 ..... Problems in Modern Art 3 units.
590 ..... Master's Resident Instruction 6 units maximum.
690 ..... Dissertation Research 12 units maximum.
Asian and Near Eastern Languages and Literatures

The Department of Asian and Near Eastern Languages and Literatures offers advanced degrees in the traditional and modern literatures and cultures of East Asia, based on substantial knowledge of at least one East Asian language. Students with a strong background in language training and experience are given preference in admission. Students desiring graduate work utilizing Near Eastern languages (Arabic, Hebrew, Persian) should consult the History Department, or the Jewish, Islamic and Near Eastern Program sections of this Bulletin. The A.M. degree in East Asian Studies is offered through the East Asian Studies Program; a joint J.D./A.M. Program in Law and East Asian Studies is offered through the East Asian Studies Program and the School of Law; and a dual M.B.A./A.M. Program in Business and East Asian Studies is offered through the East Asian Studies Program and the John M. Olin School of Business; see the East Asian Studies section of this Bulletin.

The Master of Arts in Chinese or Japanese Language and Literature requires 36 units of graduate study in Chinese or Japanese, or in related fields such as East Asian Studies and Comparative Literature, including the following:

1. Language proficiency through the fourth level (Chi 427, 428; Japan 458, 459), and two semesters of classical Chinese or Japanese (Chi 410, 411; Japan 460, 461). Candidates may be allowed to waive this requirement (as in the case of students from abroad with proficiency in Chinese or Japanese), but they must then enroll in additional program-related courses to meet the required total. No more than 12 units in Chinese or Japanese language training may be applied to the required 36 (but this restriction does not apply to complementary upper division courses in Japanese for Chinese majors or Chinese for Japanese majors).

2. A critical awareness of the broad scope of Chinese or Japanese literature and of the general methods employed in research. At least two semesters of literature survey courses (Chi 341, 342 or Japan 445, 446) are required unless previously taken in an undergraduate program. Graduate students must enroll in the research proseminar (Chi 536; Japan 537), preferably in the first year of study.

3. Either a master’s thesis in a specific area of interest to be determined in consultation with the student’s advisers, or successful completion of a comprehensive written examination with two general questions related to the major literature to be administered near the end of the candidate’s term of study. Both of these options will be followed by a short oral defense. Toward the end of the first year of candidacy, at the initiative of the student and his/her major adviser, the Department will set up a three-person committee to supervise the final stages of the A.M. degree.
Preparation for teaching certification is offered through the Department of Asian and Near Eastern Languages and Literatures and the Department of Education. (If certification in Social Studies is sought, certain language requirements may be waived on an ad hoc basis.)

The Ph.D. in Chinese or Japanese and Comparative Literature is offered jointly with the Committee on Comparative Literature. The program emphasizes critical methodology and comparative study and the acquisition of the linguistic skills and critical acumen necessary to carry out original research and become creative teachers of the language, literature, and culture of either China or Japan. While applicants may enter the program with an A.M. in Chinese, Japanese, Comparative Literature, or related areas, all of the Washington University requirements for the A.M. in Chinese or Japanese Language and Literature (see above) must be met as part of the requirements for the joint Ph.D. degree. Candidates must be proficient in Chinese or Japanese and English, and in such other languages as the dissertation may require. Language qualifying examinations may be administered as necessary.

The joint Ph.D. requires a total of 72 units of course work, up to 30 hours of which may have been earned for the A.M. degree. Courses to be taken include 18 credit units in Chinese or Japanese literary and cultural studies including two seminars at the 500 level, 6-9 credit units in a single second literature, 6-9 credit units in critical theory, and methodology (required among these is Comparative Literature 402), and 6-12 elective credit units which may focus on dissertation research. Upon admission to the program, the student will be assigned a primary adviser from the department to guide him/her through the first year of the program. In order for the student to continue past the first year of Ph.D. studies, he/she must pass a qualifying examination designed to evaluate the student's analytical abilities and writing competence. Toward the end of the first year, an advisory committee of three faculty from Comparative Literature and the Department of Asian and Near Eastern Languages and Literatures will be appointed to determine the topic of this examination and to advise him/her concerning the completion of remaining degree requirements and the writing of the dissertation.

Teaching requirements: All students gain teaching experience, either in language or in literature or in both. Students may serve as Teaching Assistants in lower level Chinese or Japanese courses; alternatively, advanced graduate students may serve as instructors of a language or a Comparative Literature course which involves Chinese or Japanese texts. (This requirement is not directly related to teaching certification, which can be arranged separately through the Department of Education and the Department of Asian and Near Eastern Languages and Literatures.)

Near the completion of course work, three comprehensive examinations are administered: a general examination, a field examination, and finally a topic examination directly related to the student's dissertation topic. The dissertation must demonstrate mastery of primary and secondary materials and the relevant historical, cultural, and critical backgrounds of the literary traditions and texts being studied. For the oral defense, the original advisory committee will be expanded to six or more members (to include outside referees) as the Department, Committee, and Graduate School may consider appropriate.
In addition to coursework and research at Washington University, the Department maintains ties with other institutions, both in this country and abroad, that further graduate study here. Students in this department have pursued advanced language study at the Center for Chinese Language and Culture Studies at National Taiwan Normal University, and the Kyoto Center for Japanese Studies, among other places. The Department also maintains exchange relationships with the Shanghai Academy of Social Sciences and Tsukuba University in Japan. Advanced students frequently visit other university library collections in North America for research as well.

For details concerning these and other related questions, consult the regularly updated Departmental Guide or artsci.wustl.edu/~anell. Contact: JoAnn Achelpohl, Administrative Assistant, voice (314) 935-5110, fax (314) 935-4399, email anell@artsci.wustl.edu

**Chinese**

409 ..... Correlations Between East and West 3 units. (Identical with Comparative Literature 409)

410 ..... Introduction to Traditional Literary Chinese I 3 units.

411 ..... Introduction to Traditional Literary Chinese II 3 units.

412 ..... Advanced Conversation in Mandarin 3 units.

413 ..... Advanced Composition in Chinese 3 units.

414 ..... Readings in Classical Chinese Philosophy 3 units. (Identical with East Asia 4141, Religious Studies 417, and International and Area Studies 4140)

420 ..... Third-Level Modern Chinese I 3 units.

421 ..... Third-Level Modern Chinese II 3 units.

427 ..... Fourth-Level Modern Chinese I 3 units. (Identical with East Asia 427)

428 ..... Fourth-Level Modern Chinese II 3 units.

460 ..... Fifth Level Modern Chinese I 3 units

461 ..... Fifth Level Modern Chinese II 3 units

463 ..... Legal and Business Chinese 3 units.

467 ..... The Chinese Theatre 3 units. (Identical with East Asia 467, Comparative Literature 477, Drama 465, and International and Area Studies 467)

470 ..... Readings in Chinese Literature 3 units. (Identical with East Asia 470 and International and Area Studies 4700)

476 ..... Reading Seminar in Chinese Traditional Fiction 3 units. (Identical with East Asia 476 and International and Area Studies 476)

477 ..... Reading Seminar in Chinese Traditional Poetry 3 units.

478 ..... Reading Seminar in Chinese Traditional Theater and Drama 3 units.

479 ..... Reading Seminar in Modern Chinese Literature 3 units. (Identical with East Asia 479 and International and Area Studies 479)

480 ..... Reading Seminar in Popular Literature and Culture 3 units. (Identical with East Asia 480 and International and Area Studies 4801)

481 ..... Reading Seminar in Religion and Chinese Literature 3 units. (Identical with East Asia 4811, International and Area Studies 481, and Religious Studies 4811)

482 ..... Reading Seminar in Gender and Chinese Literature 3 units. (Identical with East Asia 482, Women and Gender Studies 482, and International and Area Studies 482)

489 ..... Topics in Modern Chinese Literature (Identical with East Asia 4891 and International and Area Studies 489)

4891 ..... Topics in Chinese Literature and Culture: The Chinese City in the Global Context (Identical with East Asia 4892 and Comparative Literature 4891)
Japanese

409 ..... Correlations between East and West 3 units. (Identical with Comparative Literature 4210)

412 ..... Third-Level Modern Japanese I 3 units.

413 ..... Third-Level Modern Japanese II 3 units.

445 ..... Japanese Fiction 3 units. (Identical with East Asia 443 and International and Area Studies 4450)

446 ..... The Japanese Theater 3 units. (Identical with East Asia 446 and International and Area Studies 4466)

447 ..... Japanese Film 3 units. (Identical with Drama and East Asia 447 and International and Area Studies 4470)

448 ..... Japanese Poetry 3 units. (Identical with East Asia 4483 and International and Area Studies 448)

449 ..... Modern Japanese Writers 3 units. (Identical with East Asia 4492 and Women and Gender Studies 4494)

450 ..... Masterworks of Early Japanese Literature 3 units. (Identical with East Asia 4501)

458 ..... Fourth-Level Modern Japanese I 3 units.

459 ..... Fourth-Level Modern Japanese II 3 units.

460 ..... Pre-modern Japanese I 3 units.

461 ..... Pre-modern Japanese II 3 units.

462 ..... Fifth Level Modern Japanese I 3 units.

463 ..... Fifth Level Modern Japanese II 3 units.

464 ..... Japanese Textual Analysis 3 units. (Identical with East Asia 4641)

465 ..... Advanced Readings in Modern Japanese 3 units. (Identical with East Asia 4651)

471 ..... Topics in Japanese Culture 3 units.

481 ..... Buddhism and Japanese Literature 3 units. (Identical with East Asia 481 and Religious Studies 483)

491 ..... Topics in Japanese Literature and History 3 or 4 units. (Identical with East Asia 491, History 427, and Literature and History 411)

4911 ..... The Nativist Dimension in Modern Japanese Literature 3 units. (Identical with East Asia 4911)

499 ..... Guided Readings in Japanese 1 to 3 units. (Identical with East Asia 499)

500 ..... Independent Study 3 units maximum.

510 ..... Seminar and Practicum in Language Teaching 3 units.

520 ..... Practicum in Literary Translation 3 units.

528 ..... Modern Japanese Literary Texts 3 units. (Identical with East Asia 5251)

535 ..... Seminar in Literary Criticism I 3 units. (Identical with East Asia 535)
537 ..... Proseminar: Methods and Materials Used in Conducting Research in Japanese Studies 1 to 3 units. (Identical with East Asia 537)

561 ..... Special Topics Seminar in the Literature of Japan 3 or 6 units. (Identical with East Asia 561 and Comparative Literature 571)

567-570 ... Seminars in Japanese Literature 3 units each.

573 ..... Seminar in Japanese Language and/or Area Teaching 3 units. (Identical with East Asia 573)

575 ..... Teaching Internship in Japanese 1 to 3 units.

592 ..... Thesis Research 6 units maximum.
The A.M. Program
Director and Professor
Garland Allen

Biology

Faculty research interests range from problems of structure and function at the molecular level through investigation of dynamic processes of development and regulation at the cellular and organ levels, to taxonomic, ecological, and evolutionary analyses at the organismic and populational levels. Accordingly, the variety of areas available to graduate students for concentrated study and research is very wide.

The Ph.D. Programs in Biology

The program listing on this page refers only to the A.M. program in Biology. Ph.D. programs are available through the Division of Biology and Biomedical Sciences; see the following entry for a description of offerings and admission requirements. Normally students enter Ph.D. programs directly from a four year baccalaureate program; a master's degree is not a prerequisite.

The A.M. Program in Biology

The Master of Arts in Biology program provides opportunities for professionals in fields of health and science, secondary school teachers, laboratory technicians, and other scientists to gain further academic training in emerging fields of biological science, prepare for career changes, improve their professional standing, and deepen their understanding of biological topics. Designed to be adaptable to individual students' unique backgrounds and goals, the program provides a flexible curriculum with individual advising and supervision for each student. Courses are offered nights and weekends.

Sponsored jointly by the Graduate School of Arts and Sciences, University College, and the Department of Biology of Washington University, the A.M. in Biology is normally a terminal graduate degree. Courses in the program are taught by faculty from diverse areas of the university as well as from local industry. Field courses take advantage of the Tyson Research Center with its resources for work in wildlife, environment, ecology, and education. In addition the department has close ties with the Washington University School of Medicine, the Missouri Botanical Garden, the St. Louis Zoo, and local biotechnology industries.

Students seeking the A.M. degree in Biology must satisfactorily complete 30 units of graduate work in the biological sciences in courses approved by the Program Committee. Up to six units of related graduate-level course work may be transferred from another university. No more than six units may be earned in research courses. Students may also choose to do a six-unit Masters thesis.

The program is open to qualified applicants with a baccalaureate degree from an accredited institution of higher learning who have completed undergraduate work in biology, mathematics, and chemistry. Applicants with an undergraduate degree in mathematics or engineering should also have taken at least one full-year introductory college course in biology. Applicants must submit a completed application form of the Graduate School of Arts and Sciences including a short essay describing the role of
the program in the applicant's career; a $35 non-refundable application fee; official transcripts of all previous undergraduate and graduate work and degrees granted; Graduate Record Examination results (written, quantitative, and verbal sections); three letters of reference; and other material that either the student or the Program Committee may consider relevant. Normally applicants are expected to have a cumulative grade point average of B (3.0 on a 4.0 scale) or better in their previous course work. With approval of the program director, students may take up to two courses without being admitted to the program; further enrollment in courses is open only after formal admission.

For more information and application materials, call (314) 935-6778 or visit our website at www.ucollege.wustl.edu.

Selected Graduate Courses

4001; 4002 ... Teaching the Science of Nature: Spring; Fall
3 units.

405 ..... Introduction to Molecular Biology 3 units.

406 ..... Introduction to Biochemistry 3 units.

412 ..... Conservation Biology and Biodiversity 3 units.

414 ..... Principles of Ecology 3 units.

416 ..... Human Genetics: Its Social and Ethical Implications in Historical Perspective 3 units.

4201 ... Topics in Biochemistry 3 units.

4241 ... Immunology 3 units.

430 ..... Introduction to Cell and Tissue Culture Techniques 3 units.

435 ..... Introduction to Neurobiology 3 units.

437 ..... Laboratory on DNA Manipulation 4 units.

438 ..... Virology 3 units.

4391 ... Modern Genetics 3 units.

442 ..... The Darwinian Revolution 3 units.

448 ..... Plant Physiology Biochemistry 3 units.

455 ..... Molecular Mechanisms in Embryonic Development 3 units.

472 ..... Molecular Cell Biology 3 units.

511 ..... Molecular Basis of Biological Warfare 3 units.

530 ..... Molecular Biology of Eukaryotic Systems 3 units.

5393 ... Molecular Mechanisms of Disease 3 units.

In addition to courses offered by the A.M. Program, graduate courses from other divisions of the University, including the Schools of Engineering and Medicine, may be given credit for the A.M. degree with approval of the Administrative Committee.
Biology and Biomedical Sciences

The Division of Biology and Biomedical Sciences is a graduate educational consortium which was established in 1973 in response to the emerging interdisciplinary nature of modern biology and the fact that scientists interested in related areas of investigation were dispersed among several different schools and departments of the University. The faculty of the Division consists of over 350 members. Interested students may obtain a listing of all Division faculty and descriptions of their research interests by visiting the Division website at http://dbbs.wustl.edu. Graduate study in the Division is organized into the twelve programs described below, all of which are highly individualized and focus on the needs and interests of each student. Individuals accepted by the Division of Biology and Biomedical Sciences are guaranteed a competitive stipend, provided all academic standards are met. Tuition remission is provided for all Division students. The Division requires all students to be engaged in doctoral studies on a full-time basis; outside employment is not permitted. The Division does not offer M.A. or M.S. degrees.

The faculty in each of the divisional programs, besides participating in instruction, determines the specific requirements for the Ph.D. degree. In general, doctoral requirements include: completion of core and advanced coursework; demonstration of competency in the chosen field of study by passing qualifying exams; conducting original hypothesis-driven laboratory research suitable for a dissertation; and, defense and publication of the dissertation. Because teaching is regarded as an important academic skill, all students serve as a teaching assistant for at least one major course during the period of graduate study.

Graduate students are admitted to the Division as members of one of the twelve programs, but may transfer to an alternate program if academic or research interests change significantly. For the first year in the Division, students are advised by the steering committee of the program in which they are affiliated, receiving guidance from them with regard to course work and laboratory rotations. In general, students complete core course work during the first year and rotate through three laboratories to become acquainted with current research in areas of special interest. By the end of the first year, most students select a laboratory mentor who will provide the guidance needed to carry out work leading to the Ph.D. dissertation. In the second year advanced elective courses and seminars are taken and preliminary examinations are completed.

Once a student initiates a dissertation research program, progress is assessed at regular intervals by a faculty committee composed of individuals with appropriate scientific expertise. The function of the committee is not only to assess the student’s progress, but also to provide research guidance. The third and subsequent years of each program are devoted almost entirely to laboratory research and writing the dissertation. Advanced students regularly attend national and international scientific meetings.
The following programs are offered by the Division of Biology and Biomedical Sciences: Biochemistry, Computational Biology, Developmental Biology, Evolution, Ecology and Population Biology, Immunology, Molecular Biophysics, Molecular Cell Biology, Molecular Genetics, Molecular Microbiology and Microbial Pathogenesis, Neurosciences, Plant Biology and Quantitative Human & Statistical Genetics.

Applications to the Division are due no later than December 1 of the academic year preceding that in which study is to begin. In general, students are admitted only for the fall semester of each year. However, upon admission to the Division, students may begin a research rotation in the summer. Requirements for admission include a baccalaureate degree in the natural or physical sciences (certain programs will also consider those with degrees in engineering); courses in calculus, general and organic chemistry, physics, a core sequence of basic courses in biology; and a strong background in quantitative sciences. Applicants should also submit their general Graduate Record Examination scores. The subject test is optional. Foreign students must submit scores from the Test of English as a Foreign Language earned within the past two years. Undergraduate or postgraduate research experience is highly desirable. Letters of recommendation concerning research experience and accomplishments are particularly important.

No fee is charged to apply to the Division. For additional information, prospective applicants may contact the Division Office by telephone at 1-800-852-9074, by email to DBBS-infodbbs.wustl.edu, by writing to Division of Biology and Biomedical Sciences, 660 S. Euclid Ave., Campus Box 8226, Washington University School of Medicine, St. Louis, Missouri 63110, or by visiting the Division website at http://dbbs.wustl.edu.

The following courses are offered by the Division of Biology and Biomedical Sciences. When a course is part of a particular core curriculum, the program(s) requiring that course is indicated.

**Bio**

4181 ... Population Genetics (Evolution, Ecology & Population Biology) 3 units.  
4182 ... Macroevolution (Evolution, Ecology & Population Biology) 3 units.  
4183 ... Molecular Evolution 3 units.  
419 ..... Ecology (Evolution, Ecology & Population Biology) 3 units.  
422 ..... Applied Biostatistics 3 units.  
501 ..... Human Anatomy 6 units.  
5065 ... Cell Biology of the Stress Response 2 units.  
5067 ... Introduction to Bioinformatics 3 units.
5068 ... Fundamentals of Molecular Cell Biology (Molecular Cell Biology, Molecular Genetics, Developmental Biology, Molecular Microbiology, Biochemistry, Immunology) 4 units.

5073 ... Chemical Biology Journal Club 1 unit.

5074 ... Radiopharmaceutical Chemistry and Biology 1 unit.

5092 ... Molecular and Developmental Biology Journal Club 1 unit.

5123 ... Experimental Hemopoiesis Journal Club 1 unit.

5125 ... Student-Run Cell Biology Journal Club 1 unit.

5126 ... Developmental Biology Journal Club (Developmental Biology) 1 unit.

5128 ... Cell Biology of Extracellular Matrix 1 unit.

5129 ... Glycobiology Discussion Group 1 unit.

5132 ... Cytoskeleton Discussion Group 1 unit.

5137 ... Ion Channels Journal Club 1 unit.

5138 ... Journal Club For the Molecular Mechanism for Aging 1 unit.

5142 ... Cell & Molecular Biology of Bone 2 units.

5144 ... Signal Transduction in Human Biology 2 units.

5171 ... Medical Immunology 2-3 units.

5191 ... Pathobiology of Human Disease States (limited enrollment) 2 units.

5192 ... Cancer Biology Journal Club 1 unit.

5196 ... Special Emphasis Pathway in Cancer Biology 2 units.

5215 ... Thursday Development Rave 2 units.

5217 ... Special Topics in Microbial Pathogenesis 2 units.

5225 ... Proteins Journal Club 1 unit.

5235 ... Genetics Journal Club 1 unit.

5255 ... Experimental Skeletal Biology Journal Club 1 unit.

5261 ... Molecular Mechanisms of Immunological Disease (Immunology) 2 units.

5262 ... Human Immunobiology 1 unit.

5272 ... Advanced Topics in Immunology (Immunology) 2 units.

5282 ... Chromatin Structure and Gene Expression 2 units.

5283 ... Developmental and Genetic Perspective of Notch Signaling 1 unit.

5288 ... Special Topics in Molecular Genetics 2 units.

5312 ... Macromolecular Interactions (Biochemistry, Molecular Biophysics) 3 units.

5319 ... Molecular Foundations of Medicine 3 units.

5325 ... Protein Structure and Function 3 units.

5342 ... Macrophage Biology 2 units.

5352 ... Developmental Biology (Developmental Biology) 3 units.

5381 ... Mechanisms of Protein Targeting and Intercompartmental Transport 1 unit.

5384 ... Advanced Cell Biology 3 units.

5391 ... Molecular Virology 2 units.

5392 ... Molecular Microbiology and Pathogenesis 3 units.

5393 ... Molecular Virology Journal Club 1 unit.

5395 ... Special Topics in Microbiology-Chemistry-Earth Science 2 units.

5416 ... Molecular Microbiology and Pathogenesis Journal Club 1 unit.

5417 ... Hematology/Oncology Journal Club 1 unit.

5443 ... Nucleic Acids and Nucleic Acid Protein Interactions Journal Club 1 unit.

5456 ... Advanced Crystallography 2 units.

5457 ... Programming C with Biological Applications 2 units.

5461 ... Molecular Recognition 3 units.

5464 ... Computational Biochemistry 3 units.
5466 ... Current Topics in Biochemistry 1 unit.
5468 ... Cardiovascular Biophysics Journal Club 1 unit.
5472 ... Cardiovascular MRI-From Physics to Clinical Application 3 units.
5474 ... Algorithms for Computational Biology 3 units.
5478 ... Biomolecular NMR 3 units.
548 ... Nucleic Acids and Protein Biosynthesis (Biochemistry, Developmental Biology, Molecular Biophysics, Molecular Cell Biology, Molecular Genetics, Molecular Microbiology) 3 units.
5481 ... Student-Run Molecular Genetics Journal Club 1 unit.
5482 ... Human Linkage and Association Analysis 2 units.
5484 ... Genetics and Development of C. Elegans Journal Club 1 unit.
5486 ... Classic Experiments in Molecular Biology 1 unit.
5488 ... Geonomics 3 units.
5491 ... Advanced Genetics 3 units.
5494 ... Quantitative Cardiovascular Physiology 3 units.
5495 ... Computational Molecular Biology 3 units.
5496 ... Seminar in Computational Molecular Biology 1 unit.
5497 ... Special Topics in Computational Molecular Biology 2 units.
5498 ... Functional Genomics 2 units.
550 ... Medical Genetics 2 units.
5511 ... Molekoolz 2 units.
554 ... Neural Sciences 5 units.
5564 ... Topics in Neural Engineering: Sensorimotor Systems and Computations 3 units.
5565 ... Oral Presentation of Scientific Data 1 unit.
5571 ... Cellular Neurobiology (Neurosciences) 6 units.
5581 ... Neural Basis of Acoustical Communication 2 units.
5601 ... Topics in Cognitive Neuroscience 3 units.
5606 ... Cognitive Neuroscience of Human Memory 3 units.
5628 ... Classic Papers on Memory (and the ones that got away) 3 units.
5641 ... Computational Neuroscience 3 units.
5651 ... Neural Systems (Neurosciences) 4 units.
5657 ... Biological Neural Computation 3 units.
5662 ... Biological Applications of Optical Microscopy 2 units.
5663 ... Neurobiology of Disease 2 units.
567 ... Advanced Tutorials in Neural Sciences 1-3 units.
572 ... Plant Biology Seminar (Plant Biology) 2 units.
580 ... Seminar in Population Biology (Evolution, Ecology & Population Biology) 3 units.
585 ... Seminar in Floristic Taxonomy 1 unit.
5915 ... Teaching Practice (Required of all Division students) 1 unit.
Biochemistry

Research in biochemistry utilizes the concepts and approaches of chemistry to understand the molecular basis of biological processes. Fundamental chemical principles such as kinetics and thermodynamics are used to understand the stability and specificity of macromolecular interactions as well as their mechanisms of action in processes such as DNA replication, signal transduction and gene regulation. The complexity of the biology makes the application of chemical principles challenging for the biochemist.

Program of Study

Biochemistry students enroll in four to six courses and participate in three laboratory rotations in the first year. Protein Structure and Function (Bio 5325) is one of the three required courses; students must also take two of the following four courses:

- Nucleic Acids and Protein Synthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)
- Macromolecular Interactions (Bio 5312)
- Advanced Chemical Synthesis (Chem 557)

In addition, biochemistry students choose any two advanced electives from the following list. The courses are selected in consultation with the steering committee to match a student’s interests and to provide necessary background.

- Foundations in Immunology (Bio 5051)
- Central Questions in Cell Biology (Bio 5062)
- Developmental Biology (Bio 5352)
- Advanced Cell Biology (Bio 5384)
- Molecular Virology (Bio 5391)
- Molecular Microbiology & Pathogenesis (Bio 5392)
- Molecular Recognition (Bio 5461)
- Advanced Genetics (Bio 5491)
- Other Courses upon request

Students participate in any of several journal clubs, such as:

- Proteins Journal Club (Bio 5225)
- Genetics Journal Club (Bio 5235)
- Chemical Biology Journal Club (Bio 5073)
- Nucleic Acids and Nucleic Acids Protein Interactions Journal Club (Bio 5443)
Assistant Professors
Shrikant Anant
Emily Cheng
Peter Chivers
T. Joseph Kappock

Several seminars are presented by visiting scientists each week. Each of the departments, the Division of Biology and Biomedical Sciences and the graduate students organize seminar programs which feature invited faculty from other universities and research institutes. Advanced students regularly attend national and international scientific meetings.
Computational Biology

The Ph.D. Program in Computational Biology is designed to provide training in the development of computational techniques to address biological and biomedical questions. These questions include: 1) bioinformatics; 2) sequence analysis; 3) structural biology; 4) modeling of complex systems. The Program is designed for students who have been either undergraduate biology majors who have had an interest in computer science or computer science or engineering majors interested in applying their backgrounds to biological questions.

Program of Study

All students would take a core of 3 courses:

- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Computational Molecular Biology (Bio 5495/BME 537)
- Modeling Biomolecular Systems I (Bio 5476)

In consultation with their advisors, students choose a minimum of three advanced electives. The interdisciplinary nature of the program allows considerable flexibility in choosing these courses, and sometimes more than three courses may be recommended, depending upon the student's needs. Common choices for these advanced electives include the following:

- Population Genetics (Bio 4181)
- Molecular Evolution (Bio 4183)
- Macromolecular Interactions (Bio 5312)
- Protein Structure and Function (Bio 5325)
- Mathematical Methods for Biophysics and Biochemistry (Bio 5329)
- Molecular Recognition (Bio 5461)
- Computational Biochemistry/Molecular Recognition (Bio 5464)
- Algorithms for Computational Biology (Bio 5474)
- Genomics (Bio 5488)
- Advanced Genetics (Bio 5491)
- Computational Neuroscience (Bio 5641)
- Statistical Thermodynamics (Chem 562)
- Statistical Computation (Math 475)
- Probability (Math 493)
- Mathematical Statistics (Math 494)
- Stochastic Processes (Math 495)
- Statistical Mechanics (Phys 529)
- Intro to Formal Languages and Automata Theory (CS 507)
- Information Systems and Database Design (CS 530)
- Numerical Methods (SSM 465)

Students would also be required to take at least two special topics courses and one journal club. Any DBBS special topics courses and journal clubs could be taken, but those especially appropriate for Computational Biology would be:

- Special Topics in Computational Biology (Bio 5497)
- Genome Analysis/Functional Genomics (Bio 5498)

Journal Club

Computational Biology Journal Club (Bio 5496)
Developmental Biology

The Developmental Biology Program at Washington University provides students with opportunities to examine fundamental problems of development in a wide range of model systems. Students and faculty in the program employ a combination of genetic, cytological, immunological, microsurgical and biochemical approaches in elucidating the molecular mechanisms underlying developmental processes.

Program of Study

Developmental Biology students take a common set of core courses during the first semester including:

- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)

Developmental Biology students begin to specialize their training during the second semester, and enroll in the following courses:

- Developmental Biology (Bio 5352)
- Advanced Genetics (Bio 5491)

Students may choose any one or more of the following additional advanced electives, subject to the approval of the Developmental Biology steering committee:

- Foundations in Immunology (Bio 5051)
- Macromolecular Interactions (Bio 5312)
- Macromolecular Structure (Bio 5315)
- Statistical Thermodynamics of Macromolecular Interactions (Bio 5355)
- Advanced Cell Biology (Bio 5384)
- Molecular Microbiology (Bio 5392)
- Molecular Recognition (Bio 5461)
- Computational Molecular Biology (Bio 5495)

Throughout their training students enroll in special topics courses and journal clubs:

Special Topics Courses

- Selected Topics in Developmental Biology (Bio 512)
- Central Questions in Cell Biology (Bio 5062)
- Developmental Biology Journal Club (Bio 5126)

- Special Topics in Molecular Genetics (Bio 5288)
- Mech. of Prot. Target & Intercompart. Transport (Bio 5381)
- Thursday Development Rave (Bio 5215)
James B. Skeath
Dwight Towler
Sergey M. Tuyenovsky
David B. Wilson

Assistant Professors
Perry E. Bickel
Zhou Feng Chen
Jeremy Gibson-Brown
Robert O. Heuckeroth
Shin-ichiro Imai
Patrick Jay
Kristin Kroll
Fanxin Long
Liang Ma
Jason Mills
David Rudnick
Michael Shipley
Theodore C. Simon
Thaddeus Stappenbeck
Tanya Wolff

Research Associate Professors
Nancy Baenziger
Dwayne Simmons
Mark Warchol

Journal Clubs
Cell Biology Journal Club (Bio 5124)
Developmental Biology Journal Club (Bio 5126)
Pathobiology Journal Club (Bio 5127)
Extracellular Matrix & Cell Matrix Interactions Journal Club (Bio 5128)
Cell Motility and Cytoskeleton Journal Club (Bio 5132)
Proteins Journal Club (Bio 5225)
Genetic and Development of C. Elegans Journal Club (Bio 5484)
Evolution, Ecology and Population Biology

The Evolutionary and Population Biology Program combines population genetics, phylogenetic and ecological perspectives to study the origins and maintenance of biodiversity. It is a diverse program that combines field studies with the technical advances of molecular genetics and mathematical theory to gain an understanding of evolutionary history and environmental biology.

Program of Study
The course work in the program is centered around four core courses. Students are required to take three of the four courses:
- Population Genetics (Bio 4181)
- Macroevolution (Bio 4182)
- Community Ecology (Bio 419)
- Population Ecology (Bio 4170)

Students are also expected to enroll in the Population Biology Seminar (Bio 580) each semester for the first two years of the program. A number of specialty courses are also available, including:
- Floristic Taxonomy (Bio 585)
- Molecular Evolution (Bio 4183)
- Quantitative Genetics (Bio 4202)
- Experimental Ecology Lab (Bio 4193)

In addition to formal course work, students undertake three research laboratory rotations, each approximately three months in duration, to obtain experience in areas including the techniques of molecular genetics, morphometry, quantitative genetics, field ecology, cytology and systematics.
Immunology

Immunology is the discipline of biology that examines the mechanisms of host defense against pathogenic agents. The study of the immune system offers a unique opportunity to analyze a complex multicomponent system consisting of molecules and cells that have documented physiologic relevance. Immunology has a strong foundation in biochemistry, molecular biology and cell biology.

Program of Study
Ph.D. Students

Required courses: There are four required courses that must be completed with a grade of B or better.

Bio 5051 Foundations in Immunology (4 credits): Fall of 1st year
Bio 5264 Pillars in Immunology (2 credits): Spring of 1st year
Bio 5272 Advanced Topics in Immunology (2 credits): Fall of 2nd year
Bio 5261 Molecular Mechanisms of Disease (2 credits): Spring of 2nd year

Electives:
In addition to the four required courses, students must complete 2-3 additional elective courses, with a grade of B or better, for a total of no less than 5 credits.

Immunology electives:
Bio 5262 Human Immunobiology Pathway (1 credit): Spring

Non-Immunology electives:
Bio 5068 Fundamentals of Molecular Cell Biology (4 credits): Fall
Bio 5392 Molecular Microbiology & Pathogenesis (3 credits): Spring
Bio 5012 The Basics of Bio-Entrepreneurship (3 credits): Spring
Bio 548 Nucleic Acids & Protein Biosynthesis (3 credits): Fall
Bio 5312 Macromolecular Interactions (3 credits): Spring
Bio 5325 Protein Structure and Function (3 credits): Fall
Bio 5352 Developmental Biology (3 credits): Spring
Bio 5384 Advanced Cell Biology/Biochemistry of Membranes (3 credits): Spring

By the end of the second year, most students will have completed their formal course work and their qualifying examination for admission to candidacy for the doctoral degree. Students then spend most of their time working on their chosen thesis-research problem in the laboratory.

M.D./Ph.D. Students:
During their first year in the immunology graduate program (third year MSTP) M.D./Ph.D. students will take two courses:

Bio 5051 in the fall and Bio 5264 spring
or
Bio 5051 and Bio 5272 concurrently in the fall
or
Bio 5272 in the fall and Bio 5264 in the spring

The decision on which course combination to take will depend on the student’s interest and prior background in immunology.
By the end of the first year in the program (third year MSTP), most M.D./Ph.D. students will have completed their formal course work and their qualifying examination for admission to candidacy for the doctoral degree.

In addition, students are encouraged to participate in the student-run journal club that meets twice per month and to attend the Immunology Seminar Series, where time is provided for the students to interact directly with invited outside speakers.
Molecular Biophysics

Molecular Biophysics brings together elements of biology, chemistry, physics and mathematics to describe and understand biological processes. It is a fusion of two scientific cultures: The systems and processes of biochemistry and molecular biology are joined with the principles and quantitative laws of physical chemistry. The goal is to develop a quantitative and predictive understanding of biology at a detailed molecular level.

Program of Study

The multidisciplinary nature of biophysics attracts students with diverse backgrounds. To develop an appropriate curriculum, each student meets at the beginning of the first year with a faculty advisory committee to select courses and to discuss laboratory rotations. These meetings continue on a regular basis until a thesis laboratory is chosen. Molecular Biophysics students are expected to take four to six courses in the first year. These courses may be from within the Molecular Biophysics Program, as well as other Programs or departments. All students in the Program are required to take the following two Program courses:

- Protein Structure and Function (Bio 5325)
- Macromolecular Interactions (Bio 5312)

and to select two courses and one advanced topic from among offered courses (e.g.):

- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)
- NMR of Biomolecules (Bio 5478)
- Modeling Biomolecular Systems I (Bio 5476)
- Modeling Biomolecular Systems II (Bio 5477)
- Physical Chemistry of Macromolecules (Bio 536)
- Protein Chemistry and Enzyme Mechanisms (Bio 537)
- Advanced Cell Biology/Biochemistry of Membranes (Bio 5384)

These courses are offered through the departments of Chemistry, Physics, and Mathematics as well as through the Division of Biology and Biomedical Sciences. Typically, first-year students participate in three laboratory rotations. To evaluate basic knowledge and comprehension in both biological and physical sciences, a preliminary exam is given at the end of the second year.
Molecular Cell Biology

Students and faculty in the Program in Molecular Cell Biology investigate fundamental cellular processes and the mechanisms that control them. Among the subjects currently under investigation are: gene expression; mechanisms of transcription and tissue-specific transcription regulation; molecular mechanisms involved in cell proliferation and cell death; regulation of the cell cycle; cell cytoskeleton, motility and chemotaxis; pathways for the trafficking of molecules into and out of cells; receptor-ligand interactions involved in regulation of cell growth and cell phenotype; signal transduction molecules and pathways; lipid metabolism; assembly of supramolecular structures including extracellular matrix; mechanisms of enzyme catalysis and inhibition, and microbial pathogenesis. A common theme uniting these research programs is the desire to understand essential cellular functions at the highest possible level of molecular resolution.

Program of Study

Typically a graduate student begins the program in late August and enrolls in two core courses:

- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)

Because of the diversity of interests within the Program, laboratories sharing common interests have organized a number of more focused, advanced elective courses which are offered to second-, third- and fourth-semester students. These include:

- Advanced Cell Biology (5384) - (Mandatory for Molecular Cell Biology Students)
- Advanced Genetics (Bio 5491)
- Biotech Industry Innovators (Bio 5014)
- Developmental Biology (Bio 5352)
- Macromolecular Interactions (Bio 5312)
- Macromolecular Structure (Bio 5315)
- Molecular Microbiology (Bio 5392)
- Molecular Recognition (Bio 5461)
- Principles and Applications of Biological Imaging
- Statistical Thermodynamics of Macromolecular Interactions (Bio 5355)
- Computational Molecular Biology (Bio 5495)

In addition, a number of Special Topics (seminar courses) are offered as advanced electives, according to student and faculty interest. These courses review literature on current fundamental questions in each field, emphasizing recent advances in knowledge. Courses include:

- Central Questions in Cell Biology (Bio 5062)
- Advanced Immunology (Bio 5272)
- Molekoolz (Bio 5511)
- Macrophage Development (Bio 5342)
Mechanism of Protein Targeting & Intercompartmental Transport (Bio 5381)
Special Topics in Microbial Pathogenesis (Bio 5217) Molecular Mechanisms of Disease (Bio 5261)
Pathobiology of Human Disease States (Bio 5191)
Selected Topics in Developmental Biology (Bio 512)
Special Topics in Molecular Genetics (Bio 5288)
Thursday Development Rave (Bio 5215)

Finally, students participate in journal clubs organized by several laboratories with overlapping interests. Such journal clubs include:

- Cancer Biology Journal Club (Bio 5192)
- Cell Biology Journal Club (Bio 5124)
- Cell Motility and Cytoskeleton Journal Club (Bio 5132)
- Developmental Biology Journal Club (Bio 5126)
- Extracellular Matrix & Cell Matrix Interactions Journal Club (Bio 5128)
- Hematology/Oncology Journal Club (Bio 5417)
- Molecular Microbiology & Pathogenesis Journal Club (Bio 5416)
- Molecular Virology Journal Club (Bio 5393)
- Pathobiology Journal Club (Bio 5127)
- Proteins Journal Club (Bio 5225)
- Student-Run Cell Biology Journal Club (Bio 5125)
Molecular Genetics

The Molecular Genetics Program trains students to seek to understand how genes are inherited, modified, expressed, and regulated. Only students working toward the Ph.D. degree are admitted to the program. Requirements for the Ph.D. degree are 1) completion of 72 units of credit (including a one semester course in the ethical aspects of conducting biological research), with the maintenance of a “B” average, 2) successful completion of a qualifying exam, 3) maintenance of “satisfactory academic progress,” and 4) defense of a thesis. In addition, all students must serve as a teaching assistant for at least one semester. A detailed description of the course requirements, qualifying exam, thesis defense, what constitutes “satisfactory academic progress,” and other policies of this graduate Program can be found in the “Student Guide to Division Policies” of the Division of Biology and Biomedical Sciences.

Program of Study

Students enroll in a common set of core courses during the first semester:
- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)

Students in the Molecular Genetics Program begin specialized training in the second semester. Advanced Genetics (Bio 5491) and Genomics (Bio 5488) are required; students may take other advanced elective courses in subsequent semesters and may choose from the following:
- Central Questions in Cell Biology (Bio 5062)
- Cell-Matrix Interactions (Bio 5122)
- Computational Molecular Biology (Bio 5495/BME 537)
- Developmental Biology (Bio 5352)
- Macromolecular Interactions (Bio 5312)
- Protein Structure and Function (Bio 5325)
- Advanced Cell Biology (Bio 5384)
- Molecular Microbiology and Pathogenesis (Bio 5392)
- Molecular Recognition (Bio 5461)
- Genomics (Bio 5488)
- Molecular Virology (Bio 5391)
- Advanced Genetics (Bio 5491)

Students in the program also enroll in special topics courses and journal clubs. These activities promote optimal student-faculty interaction, allow students to study current research topics in great depth and provide valuable experience in oral presentation.

Special Topics Courses

- Functional Genomics (Bio5498)
- Pathobiology of Human Disease States (Bio 5191-Limited Enrollment)
- Molecular Mechanisms of Disease (Bio 5261)
- Special Topics in Molecular Genetics (Bio 5288)
Assistant Professors
Thomas J. Baranski
Douglas Chalker
Barak Cohen
Shin-ichiro Imai
Timothy Graubert
James Hsich
Robi Mitra
Michael M. Neff
Christine Pham
Nancy Saccone
Paul Shaw
Shiela Stewart
Michael Tomasson
Heather True-Krob
Jason Weber
Katherine Weilbaecher
Tanya Wolff
Dong Yu

Research Professor
Janet Connolly

Research Associate Professors
Timothy P. Fleming
Warren R. Gish

Research Assistant Professors
Steven J. Weintraub

Mech. of Prot. Target & Intercompart. Transport (Bio 5381)
Special Topics in Microbial Pathogenesis (Bio 5217)
Molekoolz (Bio 5511)
Human Linkage & Association Analysis (Bio 5482)

Journal Clubs (2 semesters of Genetics Journal Club are required)
Cell Biology Journal Club (Bio 5124)
Developmental Biology Journal Club (Bio 5126)
Proteins Journal Club (Bio 5225)
Genetics Journal Club (Bio 5235)
Genetics and Development of C. Elegans Journal Club
(Bio 5484)
Student-run Molecular Genetics Journal Club (Bio 5481)
Molecular Microbiology and Microbial Pathogenesis

The Molecular Microbiology and Microbial Pathogenesis Program teaches comprehensive and modern approaches to understanding microbes and the diseases they cause. The program includes three major areas of research: molecular microbiology, microbial pathogenesis and host defense, and molecular virology.

Molecular microbiology focuses on studies of the genetics and physiology of microbes, including fundamental processes of gene regulation, RNA processing, and protein synthesis and processing.

Microbial pathogenesis and host defense includes research in the molecular biology and biochemistry of pathogenic bacteria, fungi, protozoa, helminths and viruses, with emphasis on mechanisms of virulence and host-parasite interactions.

Molecular virology research centers on the mechanisms of virus replication, gene expression and latency during infection by DNA, RNA and retroviruses.

Molecular Microbiology

Studies of the genetics and physiology of microbes, including fundamental processes of gene regulation, RNA processing, and protein synthesis and processing.

A number of microbial models are used to investigate the mechanisms of ribozyme (RNA enzyme) action, RNA processing, transcriptional activation, transcriptional regulatory cascades and regulatory responses to environmental signals such as oxygen tension and nitrogen and sulfur availability, secretion and assembly of extracellular components, and to develop new methods for DNA sequencing and functional analysis.

Microbial Pathogenesis and Host Defense

Research in the molecular biology and biochemistry of pathogenic bacteria, fungi, protozoa, helminths and viruses, with emphasis on mechanisms of virulence and host parasite interactions.

The application of emergent technologies in molecular genetics and cell biology to the study of microbial pathogens has brought about a renaissance in the field of infectious diseases. One of the prime goals of these studies is an understanding of the mechanisms involved in host-parasite interactions. Such studies extend into the mechanisms of immunity to pathogens, the development of new strategies for immunotherapy and protection, and the identification and exploration of novel targets for chemotherapy.

Molecular Virology

Research in the mechanism of virus replication, gene expression and latency during infection by DNA, RNA and retroviruses. Studies in this area focus on the molecular events during the viral infection cycle, including DNA replication, gene expression, viral assembly and mechanisms of pathogenesis.
Program of Study

In the first semester students complete the **core curriculum** of the Programs in Cell and Molecular Biology:
- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Fundamentals of Molecular Cell Biology (Bio 5068)

Students begin specialized training in Microbiology in the second semester. The following **advanced elective course** is considered central to the Program:
- Molecular Microbiology and Pathogenesis (Bio 5392)

Students may choose any two advanced **electives from** the following list, subject to the approval of the Molecular Microbiology and Microbial Pathogenesis steering committee:
- Foundations in Immunology (Bio 5051)
- Macromolecular Interactions (Bio 5312)
- Macromolecular Structure (Bio 5315)
- Development Biology (Bio 5352)
- Advanced Cell Biology (Bio 5384)
- Molecular Microbiology & Pathogenesis (Bio 5392)
- Molecular Recognition I & II (Bio 5461/62)
- Advanced Genetics (Bio 5491)
- Computational Molecular Biology (Bio 5495)

During the course of their training, students also complete five **special topics courses** chosen from those in the following list:
- Selected topics in Developmental Biology (Bio 512)
- Central Questions in Cell Biology (Bio 5062)
- Pathobiology of Human Disease States (Bio 5191-Limited Enrollment)
- Special Topics in Microbial Pathogenesis (Bio 5217)
- Molecular Mechanisms of Disease (Bio 5261)
- Molecular Virology (Bio 5391)
- Advanced Immunology (Bio 5272)
- Special Topics in Molecular Genetics (Bio 5288)
- Macrophage Development (Bio 5342)
- Mech. of Prot. Target & Intercompartment. Transport (Bio 5381)
Neurosciences

The large and interactive faculty of the Neurosciences Program focuses interest on almost every area in modern neuroscience: molecular neurobiology, cellular neurobiology, systems and integrative neuroscience, and developmental neurobiology.

Molecular neurobiologists at Washington University are currently identifying, cloning and sequencing many genes underlying basic neural functions. Cellular neurobiologists aim to understand the common characteristics shared by many cell types as well as the distinctive characteristics that underlie specialized aspects of function. Systems and integrative neuroscience focuses on how the brain is organized and how it functions. The field known as developmental neurobiology is principally concerned with the way in which the mature nervous system comes into being during embryonic and post-embryonic development.

Program of Study

In the first year, all students enroll in the core curriculum of the program. This consists of two courses, one offered in each semester:

- Cellular Neurobiology (Bio 5571)
- Neural Systems (Bio 5651)

The second year courses are:

- Oral Presentation of Scientific Data (Bio 5565)
- Ethics and Research Science (Bio 5011)
- Teaching Practice in Biology & Biomedical Sciences (Bio 5915)

The Neurosciences core curriculum not only provides all students with exposure to the full breadth of the discipline, but is especially helpful for students entering with limited experience in biology, including those with backgrounds in physics, chemistry, and psychology. Specialized elective courses are offered to advanced students in later years of their training.

A vital component of graduate education in Neurosciences is the laboratory rotation. Students usually do three rotations within the first year, each a semester in duration, in a laboratory of potential interest which exposes them to a variety of research approaches and faculty. All students who complete the doctoral Program in Neurosciences at Washington University receive an excellent general education in neurobiology that serves them well in their future careers in research and teaching.
Associate Professors
Walter A. Boyle, III
Guojun Bu
C. Michael Crowder
Gregory DeAngelis
Aaron DiAntonio
David Dickman
Robert Gereau
Jeffrey M. Gidday
Phyllis I. Hanson
Jim Huettner
Steven Mennerick
Stanley Misler
Stephen M. Moerlein
Louis Joseph Muglia
Bruce Nock
Michael Nonet
Keith M. Rich

James B. Skeath
Lawrence Hugh Snyder
Russell VanGelder

Research Associate Professor
Nancy L. Baenziger
Dwayne D. Simmons
Mark Warhol

Assistant Professors
Dennis Barbour
Zhou-Feng Chen
Joseph Corbo
Simon Fisher
Erik Herzog

Robert O. Heuckeroth
Timothy E. Holy
Vladimir Kefalov
Robyn Klein
Paul Kotzbauer
Joshua Maurer
Daniel Moran
Joshua Rubin
Bradley Schlaggar
Paul Shaw
Kurt Thoroughman
Plant Biology

The research areas of this program span the breadth of plant biology. A major emphasis is placed on using plants as an experimental system for the molecular genetic dissection of key processes, including photosynthesis, plant growth regulator action, environmental response, transcriptional control and DNA modification. Other areas of research include sensory physiology and cell biology, membrane biology, plant-microbe interactions and nitrogen metabolism. Research in the Plant Biology Program also encompasses studies at the organismal and population level, including research programs investigating plant molecular evolution, population genetics, ethnobotany and ethnomedicine.

Program of Study

Core courses for the Plant Biology Program are as follows:

- Plant Developmental Genetics, Genomics, and Model Systems (Bio 4022)
- Biochemistry of Plants (Bio 4021)
- Nucleic Acids and Protein Biosynthesis (Bio 548)
- Student-Run Plant Biology Journal Club (Bio 572)
- Ethics and Research Science (Bio 5011)
- How Plants Work: Physiology, Growth and Metabolism (Bio 4023)

Each student is also expected to take at least six credits of advanced electives (400 level or higher). A number of curriculum options exist for specialization, including plant biochemistry and cell biology, plant physiology, plant-microbe interactions, and ethnobotany. Advanced electives include the following:

- Fundamentals of Molecular Cell Biology (Bio 5068)
- Population Genetics (Bio 4181)
- Advanced Genetics (Bio 5491)
- Developmental Biology (Bio 5352)
- Molecular Microbiology and Pathogenesis (Bio 5392)
- Seminar in Floristic Taxonomy (Bio 585)
- Plant Cells and Protein Laboratory (Bio 4024)
Quantitative Human and Statistical Genetics

This recently established Ph.D. Program at Washington University in St. Louis offers an interdisciplinary approach to preparing future scientists with analytical/statistical, computational, and human genetic methods for the study of human disease. Biostatisticians will acquire the biological skills and knowledge necessary to become intellectual collaborators in all phases of human genetics research, from initial experimental design through data analysis and interpretation. Biology students working in human genetics (such as disease gene identification, association mapping of genes for complex traits, or the analysis of large data sets) will require the skills to go from the bench to effective data analysis.

This program has two tracks for specialization: “Statistical Genetics” and “Human Genetics”. The Statistical Genetics Track targets students with majors in statistical/mathematical/analytical sciences with at least a certain minimum background in biology. Likewise, the Human Genetics Track targets students majoring in biological sciences with at least a certain minimum background in analytical/statistical/computational area. Training will address statistical genetics, bioinformatics, and human/mammalian genetics. A typical student in this program will pursue a dissertation devoted either to the development of novel analytical method(s) needed to solve a certain biological problem (Statistical Genetics Track), or competent analysis of a biological problem by applying a variety of state-of-the-art analytical methods (Human genetics Track).

Program of Study

The major goal of the program is to train students with a cross-cultural training in “wet lab” molecular biology and human genetics as well as in analytical and computational techniques of genetic epidemiology and statistical genetics. Graduates of the program will understand the critical issues in both fields and will be able to employ both fields in addressing and answering problems in biomedical research. To achieve true integration, each student will do three research rotations, with at least one in each of the two areas. All students will be exposed to teaching skills by serving as TAs for one semester.

The curriculum is designed to address the needs of students from both backgrounds, primarily biological versus primarily analytical/statistical. Students lacking adequate cross training will take remedial courses. To foster close peer interactions among students from both streams, all students will take three required courses:

- Fundamentals of Mammalian Genetics (New Course)
- Computational Statistical Genetics (M21-621)
- [OR Biostatistics for Research Workers (M21-505)]
- Linkage and Association (M21-5482/M21-540)
Each student will also take at least three advanced electives. Students will opt for one of the two tracks, in consultation with the Faculty Directors, depending on their background and the choice of electives. The current list of electives includes the following:

- Advanced Genetics (Bio 5491)
- An introduction to Genomic Analysis (L41 Biol 5498)
- Bioinformatics (M21-550)
- Computational Mol Biology (L41-5495)
- Epidemiologic Methods (Multiple Choices)
- Genomics (L41 5488)
- Mathematical systems biology (M21- 551)
- Population Genetics (L41 4181 Biol)
- Probability (L24 493)
- Statistics (L24 494)
- Stochastic Processes (L24 495 Math)
- Study design (M21-615)
Business Administration

The John M. Olin School of Business' doctoral program prepares students for faculty positions in business education. Requiring five years of full-time study, a dissertation demonstrating original research is a central part of the program. The Program is kept at a level of about 35 students across all disciplines in order to ensure a high level of interaction between students and faculty. Incoming doctoral students must have completed course work in advanced calculus, linear algebra, statistics, and microeconomics. Areas of specialization are: Accounting, Business Economics, Finance, Marketing, Organizational Behavior, Operations and Manufacturing Management, and Strategy. The general degree requirements are the same for all candidates and consist of:

- Completion of course work in mathematics, statistics, econometrics, and microeconomics (some disciplines require a written examination in addition to the course work).
- Completion of a comprehensive examination covering the requirements in a major field of study.
- Completion of a minor field requirement that consists of a sequence of courses.
- Completion of an oral presentation of an essay-length research paper.
- Participation in doctoral seminars and/or workshops in the major field of study.
- Oral presentation of a written proposal and defense of a doctoral dissertation.

Students who complete the program are awarded the Ph.D. in Business Administration. The Masters of Science in Business Administration (M.S.B.A.) is awarded to doctoral students as they progress toward the Ph.D. Students are not admitted who seek the M.S.B.A. as a terminal degree.

For additional information regarding the Olin School of Business Ph.D. Program in Business Administration and application materials, contact Cretta Wilson, Coordinator, Ph.D. Admissions and Student Services, Olin School, Box 1133; voice (314) 935-6340; FAX (314) 935-4074; email phdinfo@wustl.edu; WWW Site http://www.olin.wustl.edu/phd
Chair and William Greenleaf
Eliot Professor of Chemistry
Joseph J.H. Ackerman

Charles Allen Thomas
Professor of Chemistry
Jacob Schaefer

James S. McDonnell Professor of Chemistry
Karen L. Wooley

Professors
William E. Buhro
Peter P. Gaspar
Michael L. Gross
J. Dewey Holten
Alfred G. Hortmann
T. Tom Lin
Ronald A. Lovett
Edward S. Macias
Kevin D. Moeller
Demetrios Sarantites
Lee G. Sobotka
John-Stephen A. Taylor
Mark S. Wrighton

Chemistry

Graduate study is offered leading to the A.M. and Ph.D. degrees in chemistry. Active research programs are available in organic and bioorganic, polymer, physical and biophysical, inorganic and organometallic, nuclear and radiochemistry, computational and environmental chemistry. Entering students normally have completed an undergraduate major in chemistry and are requested to present Graduate Record Examination scores in verbal, quantitative and advanced chemistry with their admission materials.

In addition to the University requirements stated earlier in this bulletin, the departmental requirements for the Ph.D. degree include
(a) an average of B in all course work, exclusive of research,
(b) satisfactory performance on written candidacy examinations,
(c) preparation of a prethesis paper or oral presentation in the area of research selected for the dissertation, (d) demonstration of ability to carry out independent research, with the preparation and defense of an acceptable dissertation, (e) satisfactory performance in teaching assistant assignments and (f) satisfactory performance on a laboratory safety examination. A more detailed description of degree requirements is available from the department office. For admissions information call (314) 935-6550.

Chem

400..... Physical Sciences in 12 Problems 1 unit.
401..... Physical Chemistry I 3 units.
402..... Physical Chemistry II 3 units.
405..... Spectroscopic Analysis 3 units.
435..... Nuclear and Radiochemistry Laboratory 3 units.
436..... Radioactivity and Its Applications 3 units.
438..... Radiopharmaceutical Chemistry 2 units.
445..... Instrumental Methods in Physical Chemistry 3 units.
451..... Organic Chemistry III 3 units.
452..... Synthetic Polymer Chemistry 3 units.
453..... Bio-organic Chemistry 3 units.
456..... Biochemistry 3 units.
458..... Chemical Reaction Mechanism Journal Club 1 unit.
459..... Organometallic Chemistry 3 units.
461..... Inorganic Chemistry 3 units.
464..... Inorganic Biochemistry 3 units.
465..... Solid-State and Materials Chemistry 3 units.
470..... Inorganic Chemistry Lab 3 units.
475..... Chemical Biology 3 units.
476..... The Chemistry of Biological Membranes 3 units.
490..... Introduction to Research 6 units maximum.
500..... Independent Work 6 units maximum.
515..... Biological Chemistry Seminar 1 unit.
520..... Nucleic Acid Chemistry 3 units.
540..... Inorganic/Organometallic Chemistry Seminar 1 unit.
541..... Advanced Inorganic Chemistry 3 units.
Joint Professors
George W. Gokel
Richard W. Gross
Michael J. Welch

Adjunct Professors
Mark S. Conradi
Denis Forster
David J. Sloop
Dennis Riley

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<td>542</td>
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<tr>
<td>550</td>
<td>Mass Spectrometry</td>
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<tr>
<td>5511</td>
<td>Mechanistic Organic Chemistry</td>
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</tr>
<tr>
<td>554</td>
<td>Molecular Orbital Theory</td>
<td>3 units.</td>
</tr>
<tr>
<td>555</td>
<td>Special Topics in Organic Chemistry</td>
<td>Variable credit.</td>
</tr>
<tr>
<td>556</td>
<td>Kinetics and Mechanisms</td>
<td>3 units.</td>
</tr>
<tr>
<td>557</td>
<td>Advanced Organic Synthesis</td>
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</tr>
<tr>
<td>558</td>
<td>Spectral Methods in Organic Chemistry</td>
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<tr>
<td>559</td>
<td>Organic Chemistry Seminar</td>
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</tr>
<tr>
<td>562</td>
<td>Statistical Thermodynamics</td>
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<tr>
<td>570</td>
<td>Quantum Chemistry and Spectra</td>
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<tr>
<td>576</td>
<td>Magnetic Resonance</td>
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<tr>
<td>5762</td>
<td>Electron Spin Resonance</td>
<td>3 units.</td>
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<tr>
<td>577</td>
<td>Physical Chemistry of Macromolecules</td>
<td>3 units.</td>
</tr>
<tr>
<td>578</td>
<td>Nuclear Magnetic Resonance Spectroscopy</td>
<td>3 units.</td>
</tr>
<tr>
<td>580</td>
<td>Special Topics in Physical Chemistry</td>
<td>3 units.</td>
</tr>
<tr>
<td>581</td>
<td>Advanced Quantum Chemistry</td>
<td>3 units.</td>
</tr>
<tr>
<td>582</td>
<td>Group Theory</td>
<td>3 units.</td>
</tr>
<tr>
<td>584</td>
<td>Molecular Spectroscopy</td>
<td>3 units.</td>
</tr>
<tr>
<td>588</td>
<td>Advanced Nuclear Magnetic Resonance</td>
<td>3 units.</td>
</tr>
<tr>
<td>590</td>
<td>Research</td>
<td>Credit to be arranged.</td>
</tr>
</tbody>
</table>
Chair and Jarvis Thurston  
And Mona Van Duyn Professor in the Humanities  
Susan Rotroff  
 Professors  
Judith Evans Grubbs  
Robert D. Lamberton  
George Pepe  
Assistant Professor  
Catherine Keane  
Emeriti  
Carl W. Conrad  
Kevin Herbert, Curator Emeritus of the Wulfing Coin Collection  
Merritt Sale

Classics

Master of Arts Program. Candidates may obtain a Master of Arts degree in Classics with a concentration in Latin, in Greek, or in both languages by completing 30 units of credit (including some required courses) and a reading list, on which a comprehensive examination will be required. A thesis (normally involving 6 units of supervised research) is strongly recommended for all students who plan to go on to pursue the Ph.D. in Classics at another university. Ability to read scholarly prose in either French or German is also required, and must be demonstrated before graduation through a reading test. Both of these languages should be mastered to the level of reading competence by students who plan to apply to Ph.D. programs.

A candidate for the Master of Arts in Teaching degree in Latin should consult the Department of Education for details and requirements.

Washington University possesses an internationally recognized resource in the John Max Wulfing Coin Collection. The coins can be applied to studies in numismatics, history, economics, and art. A small collection of papyri is also available. Olin Library is especially well endowed with Classical texts, secondary works and journals, and the libraries of the St. Louis Art Museum and St. Louis University are also important research facilities nearby.

In addition the department has computer capability for linguistic, stylistic, and comparative applications. The department is fully committed to the threefold study of the whole of antiquity and the tradition via the languages and literatures, the history of the various periods, and the art and architectural remains. For admissions information call (314) 935-5123.

Greek

411 ..... Homer, The Odyssey 3 units.
413 ..... Homer, The Iliad 3 units.
416 ..... Hesiod 3 units.
421 ..... Sophocles 3 units.
422 ..... Euripides 3 units.
423 ..... Aeschylus 3 units.
424 ..... Aristophanes 3 units.
430 ..... Herodotus 3 units.
431 ..... Thucydides 3 units.
432 ..... The Attic Orators 3 units.
435 ..... Classical Historical Prose 3 units.
436 ..... Attic Prose of the Fourth Century B.C. 3 units.
437 ..... Topics in Greek Poetry 3 units.
438 ..... Topics in Greek Literature 3 units.
451 ..... Plato 3 units.
500 ..... Independent Work 6 units maximum.
590 ..... Research 6 units maximum.

Latin

401 ..... Medieval Latin 3 units.
413 ..... Latin Philosophical Writers 3 units.
415 ..... Cicero 3 units.
4215 ... Plautus 3 units.
422 ..... Lucretius 3 units.
431 ..... *Virgil, The Aeneid.*
            3 units.

432 ..... *Horace* 3 units.

444 ..... *Latin Prose Composition*
            3 units.

451 ..... *The Roman Historians*
            3 units.

471 ..... *Elegiac Poetry* 3 units.

493 ..... *Readings in Latin Prose*
            3 units.

494 ..... *Topics in Latin Literature*
            3 units.

495 ..... *Topics in Republican Latin*
            3 units.

496 ..... *Tacitus* 3 units.

4961 ..... *Topics in Empire Latin*
            3 units.

500 ..... *Independent Work*
            6 units maximum.

590 ..... *Research*
            6 units maximum.

502 ..... *Proseminar: Research and Publication on the Graeco-Roman World*
            3 units.

510 ..... *Comparative Greek and Latin Grammar* 3 units.

**Classics**

500 ..... *Independent Work*
            6 units maximum, to be arranged.

502 ..... *Proseminar: Research and Publication on the Graeco-Roman World*
            3 units.
Comparative Literature

Comparative Literature offers the Ph.D. in Comparative Literature in combination with Chinese, English, French, German, Japanese or Spanish, and also the general Ph.D. degree in Comparative Literature.

The combined Ph.D. programs consist of thorough graduate training in one literature, considerable study of a second literature, and intensive course work in comparatist methodology and literary theory. Students with such degrees will be able to accept teaching positions in either a literature department, a language department, or a department of comparative literature. Students planning to enter these programs should have completed an undergraduate major or the equivalent in one literature and be sufficiently versed in a second literature to enroll in graduate courses within a year of beginning study.

Specific requirements for the combined Ph.D. degree will vary according to the student’s major literature, except that at least 3 hours of teaching is expected. Those interested in pursuing such degrees should request detailed information from the Chair of Comparative Literature. (See also the descriptions under Asian and Near Eastern Languages and Literatures, English, German, and Romance Languages.)

The general Ph.D. program is more loosely defined, in order that a student may explore various intellectual possibilities: for instance, the full cultural expression of a given period such as the Renaissance; diachronic studies of genre, theme and archetype; the history of ideas and emotions in a literary context; and so on. Students in the general program are required to take at least 12 units of courses in one literature and 6 units of a second. They also pursue the study of a third discipline relevant to their intellectual and critical concerns: English or another literature, music, the plastic arts, philosophy, history, film. They are required to take at least 3 units. There is a qualifying examination and 3 comprehensive examinations.

Students wishing to specialize in Drama may pursue that interest through the general Ph.D. program in Comparative Literature.

The program also offers an A.M. Degree in Comparative Literature. Candidates ordinarily will have had at least three years of the major language as undergraduates. They are expected to complete 30 units of work on the graduate level (or 24 and a thesis). There will also be an examination on a special topic. For most students these units will include 9 in the major literature, 3-9 in a second literature (depending upon the student’s level of preparation), and 6 in comparative literature.

For admissions information contact (314) 935-5170 or complit@artsci.wustl.edu or http://www.artsci.wustl/~complit.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
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<tbody>
<tr>
<td>402</td>
<td>Introduction to Comparative Literature</td>
<td>3 units.</td>
<td></td>
</tr>
<tr>
<td>409</td>
<td>Correlations Between East and West</td>
<td>3 units.</td>
<td>(Identical with Chinese 409)</td>
</tr>
<tr>
<td>4091</td>
<td>The Modernist Revolution in the Arts</td>
<td>3 units.</td>
<td>(Identical with Drama 409)</td>
</tr>
<tr>
<td>419</td>
<td>Feminist Literary Theory</td>
<td>3 units.</td>
<td>(Identical with Women’s Studies 419)</td>
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<tr>
<td>4204</td>
<td>Film Theory</td>
<td>3 units.</td>
<td>(Identical with Film and Media Studies 420)</td>
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<tr>
<td>425</td>
<td>Seminar in Theatre History</td>
<td>3 units.</td>
<td>(Identical with Drama 425)</td>
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<tr>
<td>432</td>
<td>Women Writers of the 20th-Century</td>
<td>3 units.</td>
<td>(Identical with Italian 432)</td>
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<tr>
<td>442</td>
<td>Literature of Catastrophe</td>
<td>3 units.</td>
<td>(Identical with English 441)</td>
</tr>
<tr>
<td>4422</td>
<td>History, Memory and Collective Identities</td>
<td>3 units.</td>
<td>(Identical with History 4422)</td>
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<td>449</td>
<td>Topics</td>
<td>3 units.</td>
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<tr>
<td>4610</td>
<td>Literature and Psychoanalysis</td>
<td>3 units.</td>
<td>(Identical with English 461)</td>
</tr>
<tr>
<td>4715</td>
<td>Topics in Modern Arabic Literature in Translation</td>
<td>3 units.</td>
<td>(Identical with Arabic 471)</td>
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<tr>
<td>477</td>
<td>The Chinese Theater</td>
<td>3 units.</td>
<td>(Identical with Chinese 467)</td>
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<tr>
<td>4891</td>
<td>Topics in Chinese Literature and Culture</td>
<td>3 units.</td>
<td>(Identical with Chinese 4891)</td>
</tr>
<tr>
<td>4892</td>
<td>Topics in Modern Chinese Literature</td>
<td>3 units.</td>
<td>(Identical with Chinese 489)</td>
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<tr>
<td>500</td>
<td>Independent Work</td>
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<tr>
<td>507</td>
<td>Literary Theory</td>
<td>3 units.</td>
<td>(Identical with French 5071)</td>
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<tr>
<td>5212</td>
<td>Those Wild and Crazy Times: Wonders and Witches in Early Modern Culture (1500-1700)</td>
<td>3 units.</td>
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<tr>
<td>527</td>
<td>Seminar in Comparative Literature</td>
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<tr>
<td>5290</td>
<td>Seminar in Cultural Theory</td>
<td>3 units.</td>
<td>(Identical with German 529)</td>
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<tr>
<td>5295</td>
<td>Seminar in Cultural Theory</td>
<td>3 units.</td>
<td>(Identical with English 529)</td>
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<tr>
<td>550</td>
<td>Methods of Literary Study</td>
<td>3 units.</td>
<td>(Identical with English 551)</td>
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<tr>
<td>551</td>
<td>Methods of Literary Study</td>
<td>3 units.</td>
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<tr>
<td>558</td>
<td>Seminar in Literary Forms</td>
<td>3 units.</td>
<td>(Identical with English 561)</td>
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<tr>
<td>565</td>
<td>Theorizing the Multitude</td>
<td>3 units.</td>
<td>(Identical with English 565)</td>
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<tr>
<td>590</td>
<td>Research</td>
<td></td>
<td>Credit to be arranged.</td>
</tr>
</tbody>
</table>
**Director and Professor**  
Henry I. Schvey  
(Performing Arts)

**Professor**  
Robert E. Hegel  
(Asian and Near Eastern Languages and Literatures)

**Associate Professors**  
Mary-Jean Cowell (Dance)  
Robert Henke  
(Performing Arts/Comparative Literature)  
Catherine C. Keane  
(Classics)

**Senior Lecturers**  
(Drama)  
Bonnie Kruger  
Jeffrey Matthews  
Anna Maria Pileggi  
Andrea Urice  
William Whitaker

**Lecturer/Playwright in Residence**  
Carter W. Lewis  
(Performing Arts/English)

**Lecturer**  
Julie Jordan, Graduate Advisor

---

### Drama

The A.M. in Drama at Washington University is primarily oriented toward literature, criticism, history, and theory. The degree serves those students wishing to further their specialized education in theatre before pursuing a terminal degree (M.F.A., Ph.D.), or a career in the professional theatre. The program draws on the 14 full-time theatre artists and scholars in the Performing Arts Department as well as a broad range of faculty outside of the department.

The A.M. in Drama consists of 30 units of course work followed by a comprehensive examination. An introductory course (Drama 5101) and seminars in Theatre History and in Theory are required, comprising nine of these 30 units. Up to 12 units may be earned in production courses including acting, directing, scenic design, lighting, dramaturgy, playwriting and screenwriting. At the same time, A.M. students are encouraged to take courses outside the Performing Arts Department in areas of special interest, drawing upon the expertise of graduate faculty in African and Afro-American Studies, Art History, Asian and Near Eastern Languages and Literatures, Comparative Literature, English, Germanic Languages in Literatures, Romance Languages and Literatures, and Women and Gender Studies. These course offerings need not be limited to drama, but all such selections must be approved by the Graduate Advisor.

Opportunities for financial aid exist in the form of full or partial tuition remission, and a number of graduate Teaching Assistantships are also available. On occasion, graduate students have designed and offered their own undergraduate courses.

For the student who is qualified in one or more foreign languages, graduate study in drama may be pursued at the doctoral level through the general Ph.D. program in Comparative Literature with emphasis in drama. Applications should be made directly to the Program in Comparative Literature.

Address inquiries about the A.M. in Drama to Cynthia Kahn, Assistant to the Chair: voice (314) 935-4795, FAX (314) 935-4955, email ckahn@artsci.wustl.edu

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### Chinese

- **467 ..... The Chinese Theatre** 3 units.

### Comparative Literature

- **402 ..... Introduction to Comparative Literature** 3 units.

- **425 ..... Seminar in Theater History: Drama of the Renaissance** 3 units.

- **429 ..... The Commedia Dell’arte** 3 units.

- **4691 ... Festival, Folly, and Carnival** 3 units.

### Dance

- **401, 402 Advanced Theory and Technique of Modern Dance** 3 units.

- **404 ..... Advanced Composition** 1-3 units.

### Drama

- **403 ..... Dramaturgical Workshop** 3 units.

- **408 ..... The Postmodern Revolution in the Arts** 3 units.

- **411 ..... Topics in Technical Theatre** 3 units.
<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>416</td>
<td>Period Style and Design History</td>
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<tr>
<td>426</td>
<td>Contemporary American Drama</td>
<td>3</td>
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<tr>
<td>435</td>
<td>Expressionism in the Arts</td>
<td>3</td>
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<tr>
<td>438</td>
<td>Contemporary Feminism and Theatre</td>
<td>3</td>
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<tr>
<td>439</td>
<td>Early European Avant-Garde Theatre: 1870-1940</td>
<td>3</td>
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<tr>
<td>440</td>
<td>Acting IV</td>
<td>3</td>
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<tr>
<td>444</td>
<td>Directing II</td>
<td>3</td>
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<tr>
<td>445</td>
<td>Seminar: Theatre History (Selected topics)</td>
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<td>449</td>
<td>Seminar: Dramatic Theory</td>
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<tr>
<td>450</td>
<td>Advanced Scene Design</td>
<td>3</td>
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<tr>
<td>453</td>
<td>Modern American Drama</td>
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<tr>
<td>455</td>
<td>Practicum in Arts Management</td>
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<tr>
<td>464</td>
<td>Drama and Ritual</td>
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<tr>
<td>466</td>
<td>Autobiography as Theatre (Shakespeare to Shepard)</td>
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<tr>
<td>469</td>
<td>Topics in Shakespearean Production</td>
<td>3</td>
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<tr>
<td>474</td>
<td>Acting Theories</td>
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<tr>
<td>487</td>
<td>Theatre Culture Studies Seminar</td>
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<tr>
<td>500</td>
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<tr>
<td>5101</td>
<td>Introduction to Graduate Study in Drama</td>
<td>3</td>
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<tr>
<td>524</td>
<td>Advanced Playwriting Workshop</td>
<td>3</td>
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<tr>
<td>431</td>
<td>English Drama, Exclusive of Shakespeare, to 1642</td>
<td>3</td>
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<tr>
<td>496</td>
<td>Advanced Shakespeare</td>
<td>3</td>
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<tr>
<td>422</td>
<td>French Theatre from 1800-1940</td>
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<tr>
<td>423</td>
<td>Contemporary Theatre</td>
<td>3</td>
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<tr>
<td>467</td>
<td>Existentialist Drama and the Theatre of the Absurd</td>
<td>3</td>
</tr>
<tr>
<td>490</td>
<td>Topics in German Film and Its Cultural Conditions</td>
<td>3</td>
</tr>
<tr>
<td>446</td>
<td>The Japanese Theatre</td>
<td>3</td>
</tr>
<tr>
<td>447</td>
<td>Japanese Film</td>
<td>3</td>
</tr>
<tr>
<td>426</td>
<td>Spanish-American Theatre</td>
<td>3</td>
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<tr>
<td>459</td>
<td>16th- and 17th-Century Drama</td>
<td>3</td>
</tr>
<tr>
<td>481</td>
<td>Modern Drama</td>
<td>3</td>
</tr>
</tbody>
</table>
Earth and Planetary Sciences

Graduate programs leading to the master’s or doctoral degree in Earth and Planetary Sciences are open to qualified students who have previously specialized in earth sciences, chemistry, physics, biology or engineering. Graduate Record Examination General Aptitude Tests are required for all applicants. Doctoral programs are focused on planetary science, geodynamics, evolution of the continental crust, fluid-rock interactions, geobiology, and environmental geochemistry. Doctoral candidates must complete at least six courses distributed among the subdisciplines of geology, geobiology, geochemistry, and geophysics to satisfy the breadth-of-studies requirement. At least four additional advanced courses in the candidate’s area of interest must be included in each student’s program. All first year Ph.D. students must complete an independent study project in the second semester. An evaluation for continuation of program eligibility, based on course work and the research project, is made following the first year. Candidates must prepare a research paper and defend it orally by the end of the fourth semester to advance to full candidacy. Masters candidates must complete 36 units, at least nine of which must be course work at the 500 level. A Masters research thesis must be prepared and defended by the end of the second year. The department has no foreign language requirement. More information about requirements, courses, schedules, and financial support is contained in the Department’s Program Manual. For admissions information contact the department at (314) 935-5603, or consult the website http://epsc.wustl.edu.

**EPSc**

- 400 ..... Topics in the Geosciences 1-3 units.
- 401 ..... Earth Systems Science 3 units.
- 406 ..... Economic Geology 4 units.
- 407 ..... Remote Sensing 3 units.
- 408 ..... Earth’s Atmosphere and Global Climate 3 units.
- 409 ..... Surface Processes 4 units.
- 410 ..... Earth Remote Sensing and Instrumentation 3 units.
- 418 ..... Paleobiology 4 units.
- 422 ..... Sedimentary Geology 4 units.
- 428 ..... Hydrology 3 units.
- 430 ..... Environmental Mineralogy 3 units.
- 431 ..... Petrography 3 units.
- 441 ..... Introduction to Geochemistry 3 units.
- 444 ..... Environmental Geochemistry 3 units.
- 446 ..... Stable Isotope Geochemistry 3 units.
- 448 ..... Microbial Geochemistry 3 units.
- 449 ..... Microbes in the Environment 3 units.
- 452 ..... Introduction to Seismology 3 units.
- 453 ..... Interior of the Earth 3 units.
- 454 ..... Exploration and Environmental Geophysics 4 units.
- 473 ..... Planetary Geology 3 units.
- 474 ..... Planetary Geochemistry 3 units.
480 ..... Special Topics in Microbiology, Chemistry, and Earth Sciences 3 units.

484 ..... Paleoenvironmental Reconstruction 3 units.

500 ..... Special Topics in the Geosciences 1-3 units.

505 ..... Advanced Physical Geology 3 units.

523 ..... Geobiochemical Cycles 3 units.

528 ..... Advanced Vertebrate Paleontology Seminar 1-3 units

539 ..... Metamorphism 3 units.

542 ..... Chemical Petrology 3 units.

544 ..... Methods of Geochemistry 1-5 units.

545 ..... Radiogenic Isotope Geochemistry 3 units.

553 ..... Geophysical Data Analysis 3 units.

557 ..... Geophysical Fluid Dynamics 3 units.

558 ..... Advanced Geodynamics 3 units.

559 ..... Geodynamics 3 units.

561 ..... Advanced Seismology 3 units.

562 ..... Large Scale Structural Geology 3 units.

563 ..... Regional Geology of North America 3 units.

569 ..... Thermodynamics and Phase Equilibria 3 units.

570 ..... Planetary Geophysics and Dynamics 3 units.

584 ..... Advanced Paleoenvironmental Reconstruction 4 units.

590 ..... Independent Study Credit to be arranged.

591 ..... Graduate Research Project Credit to be arranged.

592 ..... Research Credit to be arranged.

595 ..... Seminar Credit to be arranged.
East Asian Studies/Law and East Asian Studies/Business and East Asian Studies

Washington University has trained East Asian specialists for nearly 50 years, developing a nationally distinguished faculty and an innovative curriculum in East Asian society, law, and business. Three A.M. programs that combine these resources are offered.

The Master of Arts in East Asian Studies offers advanced interdisciplinary training in Chinese or Japanese studies for students seeking careers in scholarship, international business, government, and secondary education. Major areas of study include political, cultural, economic, and intellectual history; economic development; law; literature; business organization; and art history. Secondary fields may be chosen outside the East Asian curriculum when relevant to the individual program. This degree can be completed in three semesters.

The Joint Law and East Asian Studies Program, leading to the Juris Doctor and Master of Arts Degrees, combines the regular curriculum of the School of Law and special strengths in Chinese, Japanese, and international legal studies with the broad offerings of the interdisciplinary East Asian Studies Program. The joint program offers an integrated curriculum with jointly taught courses and research projects that may be applied toward both degrees. Internship opportunities are available in East Asia to provide practical training. The program can be completed in seven semesters.

The Dual Business and East Asian Studies Program, leading to a Master of Business Administration from the Olin School of Business and a Master of Arts in East Asian Studies, offers the opportunity to develop an expertise in business practice within an East Asian context. Training includes one semester in a work/study experience abroad, special advanced language classes, and a combined research project. The program can be completed in five in-residence semesters, plus one semester abroad.

The requirement for all degrees in East Asian Studies entails a minimum of 10 courses equivalent to at least 30 units. At least two substantial writing seminars (or their equivalent) must be completed, and two separate fields prepared for examination and oral defense. At least three years (or the equivalent) of preparation in one Asian language is expected, with no more than 12 credits of language normally applying to the degree. A full contingent of courses in premodern and modern Chinese and Japanese and modern Korean is available under the appropriate language section. Each degree program has a “core seminar” required of all students, and each expects substantial original research and writing. A thesis option, which usually requires an additional semester to complete, is available to A.M. students upon recommendation by the Director.
Advanced study in East Asia is available through graduate exchange agreements with major Chinese and Japanese institutions and through University approved language programs in Japan, the People’s Republic of China, and Taiwan. Washington University and the University of Missouri in St. Louis have established a consortium to promote and coordinate the study of East Asia. The Joint Center For East Asian Studies allows students equal access to the East Asian resources on both campuses, including courses, faculty, and research facilities.

The East Asian Library contains 140,000 volumes in Chinese, Japanese, and Korean, while the Law Library has a major collection on Chinese law and is actively building the collections related to the legal systems of Japan and Taiwan. The John M. Olin Library and affiliated departmental libraries contain more than two million volumes, including extensive collections on East Asia.

The program in East Asian Studies consists of faculty with an Asian specialization drawn from various departments. Full information on the faculty and curriculum associated with the Program is contained in “Guide to Degrees and Courses,” available from East Asian Studies, Washington University, Campus Box 1123, voice (314) 935-4448; fax (314) 935-7462; email: eas@artsci.wustl.edu; World WideWeb: http://artsci.wustl.edu/~eas.
4581 ..... Legal and Business
Japanese 3 units. (Identical
with Japanese 4581)

463 ..... Legal and Business
Chinese 3 units. (Identical
with Japanese 463)

464 ..... Advanced Reading in
Chinese Literacy 3
units. (Identical with Japanese
464)

4641 ... Japanese Textual
Analysis 3 units. (Identical
with Japanese 464)

4651 ... Advanced Readings in
Modern Japanese 3
units. (Identical with Japanese
465)

4652 ... A Literary View of Japan
3 units. (Identical with Japanese
465)

4661 ... Legal and Business
Japanese 3 units. (Identical
with Japanese 466)

467 ..... The Chinese Theater
3 units. (Identical with Chinese
467)

4681...Cities in Asia 3 units.
(Identical with International
Studies 468)

469... East Asian
Feminisms 3 units.

470 ..... Readings in
Chinese Literature 3
units. (Identical with Chinese
470)

471 ..... Topics in
Japanese Culture 3
units. (Identical with Japanese
471)

4711 ... Topics in Religious
Studies 3 units.
(Identical with Religious
Studies 4711)

475 ..... Seminar: Topics on
International Development of China 3
units. (Identical with Chinese 475)

476 ..... Reading Seminar in
Chinese Traditional Fiction 3 units.
(Identical with Chinese 476)

479 ..... Reading Seminar in
Modern Chinese Literature
3 units. (Identical with Chinese
479)

4791...Seminar in Religious
Studies 3 units.
(Identical with Religious Studies 479)

480 ..... Topics in Buddhist
Tradition 3 units.
(Identical with Japanese and
Religious Studies 480)

4801 ... Reading Seminar in
Popular Literature and
Culture 3 units.
(Identical with Chinese 480)

481 ... Reading Seminar in
Religion and Chinese Literature
3 units.
(Identical with Chinese 481)

482 ..... Reading Seminar in
Gender and Chinese Literature
3 units.
(Identical with Chinese 482)

484 ..... Core Seminar in East Asian
Studies 3 units.

4842...The Japanese Empire
in Asia, 1874-1945 3 units.
(Identical with History 4842)

488 ..... Directed Study (in China)
3 units.

489 ..... Directed Study (in Japan)
3 units.

4891...Topics in Modern Chinese
Literature 3 units.
(Identical with Chinese 4891)

4892 ... Topics in Modern Chinese
Literature and Culture 3
units.
(Identical with Chinese 4892)

490 ..... Topics in Chinese Literature
and History 3 or 4 units.
(Identical with Chinese 490)

4901 ... Politics and Society in
Peoples’ Republic of China
3 units.

4903 ... Advanced Seminar in
Modern Japanese History
4 units.
(Identical with History 4903)

491 ..... Topics in Japanese
Literature and History
3 or 4 units.
(Identical with Japanese 491)

4911 ... The Nativist Dimension in
Modern Japanese Culture
3 units. (Identical with International Studies 4912 and Japanese 4911)

4921 ... History of Japanese
Political Economy 3 units.
(Identical with History 4921)

4923 ... Advanced Seminar:
Communist China 3
units.
(Identical with History 4923)

4924 ... Reading Seminar:
Women in Chinese History
4 units.
(Identical with History 4924)

4932 ... Advanced Seminar 4 units.

496 ..... Readings in Asian Studies
3 units.

498 ..... Guided Readings in
Chinese 1 to 3 units.
(Identical with Chinese 498)

499 ..... Guided Readings in
Japanese 1 to 3 units.
(Identical with Japanese 499)

500 ..... Independent Study 3
units per semester
maximum.

502 ..... Directed Research in
Asian Studies 1 to 3 units.

520 ..... Practicum in Literary
Translation 3 units.
(Identical with Japanese 520)
521 ..... Practicum in Literary Translation 3 units.  
   (Identical with Chinese 521)
525 ..... Proseminar in Premodern Chinese Intellectual History 4 units.  
   (Identical with History 525)
5251 ... Modern Japanese Literary Text 3 units.  
   (Identical with Japanese 525)
527 ..... Proseminar in Modern Chinese History 4 units.  
   (Identical with History 527)
528 ..... Proseminar in Japanese History 4 units.  
   (Identical with History 528)
529 ..... Proseminar in Contemporary Chinese History 3 units.  
   (Identical with History 529)
5301 ... Proseminar on 20th Century Japan 4 units.  
   (Identical with Japanese 530)
535 ..... Nationalism in East Asia 3 units.  
   (Identical with Political Science 535)
536 ..... Proseminar: Methods and Materials used in Conducting Research in Chinese Studies 1 to 3 units.  
   (Identical with Chinese 536)
537 ..... Proseminar: Methods and Materials used in Conducting Research in Japanese Studies 1 to 3 units.  
   (Identical with Japanese 537)
538 ..... Society and Economy in Japan 3 units.
540 ..... Proseminar in Asian Art 3 units.  
   (Identical with Art History and Archaeology 540)
550 ..... Research Seminar in Chinese History 4 units.  
   (Identical with History 550)
552 ..... Seminar in Modern Chinese History 4 units.  
   (Identical with History 552)
553 ..... Seminar in Japanese History 4 units.  
   (Identical with History 553)
560 ..... Special Topics Seminar in the Literature of China 3 or 6 units.  
   (Identical with Chinese 560)
561 ..... Special Topics Seminar in the Literature of Japan 3 or 6 units.  
   (Identical with Japanese 561)
563 ..... Proseminar in Methods and Materials used in Conducting Research in Chinese Studies 1 to 3 units.  
   (Identical with Chinese 536)
565 ..... Directed Field Work: Archival and Historical Professions 1 to 3 units.
567 ..... Seminar in Chinese Politics 3 units.
5672 ... Seminar in Chinese Business 3 units.
570 ..... Literature and Culture of Japanese Religious Thought 3 units.  
   (Identical with Japanese 570)
576 ..... Teaching Internship in Asian Studies 1 to 3 units.
577 ..... Practicum in East Asian Studies 1 to 3 units.
578 ..... East Asian Studies Thesis Practicum 1 unit.
591 ..... Thesis Research 1 to 3 units.
5910 ... Advanced Seminar in History: Topics in Early Modern Chinese History 3 units.
610 ..... Readings in East Asian History 1 to 4 units.  
   (Identical with History 610)
Economics

The Department of Economics offers a Ph.D. degree. Applications for admission should be accompanied by Graduate Record Examinations scores. Requests for financial aid are considered for applicants for the Ph.D. only. Graduate students will find it helpful to have had undergraduate work in economic theory, calculus, matrix algebra, and statistics.

The Ph.D. program in economics is designed to allow a student with adequate undergraduate training to complete all requirements, including the dissertation, in four years. The Ph.D. in economics requires a student to exhibit competence in economic theory (to be shown in preliminary examinations in both micro and macro), quantitative methods, and economic thought, as well as specialized knowledge of two of the following fields: economic history, economic theory, econometrics, industrial organization, monetary economics, political economy, labor economics, and public economics. If appropriate, another field in economics or in a related discipline may be substituted for one of these specialized areas. A student must serve as a teaching assistant or teach a course under supervision.

The Master of Arts degree in economics is awarded upon successful completion of Part 1 of the Ph.D. general examination and 30 units of approved course work. It may also be earned with 30 units of course work, including an A.M. essay, or 24 units of course work plus an A.M. thesis. Course requirements include at least 12 hours of 500-level courses in economics and a statistics course selected in consultation with the student’s adviser.

For more detailed information on graduate study in economics, applicants should contact the Economics Department, Campus Box 1208, voice (314) 935-5646, FAX (314) 935-4156, EMAIL: gradsec@artsci.wustl.edu.

Econ

401 ..... Price Theory 3 units.
402 ..... Income and Employment Theory 3 units.
409 ..... Advanced Topics in Economic Analysis 3 units.
413 ..... Introduction to Econometrics 3 units.
418 ..... Mathematical Economics 3 units.
423 ..... Western Economic History 3 units.
428 ..... Capital Market Imperfections and Entrepreneurial Finance 3 units.
445 ..... Public Finance 3 units.
448W ..... Current Macroeconomic Issues 3 units.
452 ..... Industrial Organization 3 units.
4541 ..... Institutions of Production and Exchange 3 units.
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>458</td>
<td>The Theory of Property Rights</td>
<td>3</td>
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<tr>
<td>458A</td>
<td>Seminar in Applied Econometrics I: Cross Section and Panel Data</td>
<td>3</td>
</tr>
<tr>
<td>467</td>
<td>Game Theory</td>
<td>3</td>
</tr>
<tr>
<td>471Z</td>
<td>Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>475</td>
<td>International Trade</td>
<td>3</td>
</tr>
<tr>
<td>478</td>
<td>Labor Economics</td>
<td>3</td>
</tr>
<tr>
<td>480</td>
<td>Applied Financial Modeling</td>
<td>3</td>
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<tr>
<td>487</td>
<td>Economic Development</td>
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<tr>
<td>501, 502</td>
<td>Macroeconomics I, II</td>
<td>3 each</td>
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<tr>
<td>503, 504</td>
<td>Microeconomics I, II</td>
<td>3 each</td>
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<tr>
<td>506</td>
<td>Topics in Advanced Economic Theory</td>
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<tr>
<td>511</td>
<td>Quantitative Methods in Economics I</td>
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<tr>
<td>512</td>
<td>Quantitative Methods in Economics II</td>
<td>3</td>
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<tr>
<td>513</td>
<td>Elements of Econometrics</td>
<td>3</td>
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<tr>
<td>514</td>
<td>Advanced Topics in Econometrics</td>
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<tr>
<td>518A</td>
<td>Seminar in Applied Econometrics I: Cross Section and Panel Data</td>
<td>3</td>
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<tr>
<td>518B</td>
<td>Seminar on Applied Econometrics II: Time Series Analysis and Macroeconometrics</td>
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<tr>
<td>521</td>
<td>Economic Theory in Historical Perspective I</td>
<td>3</td>
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<tr>
<td>526</td>
<td>Economic History and Development</td>
<td>3</td>
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<tr>
<td>527</td>
<td>Graduate Seminar in Western Economic History</td>
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<tr>
<td>528</td>
<td>Graduate Seminar in American Economic History</td>
<td>3</td>
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<tr>
<td>532</td>
<td>Monetary Theory</td>
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<tr>
<td>533</td>
<td>Topics in Monetary Institutions and Policy</td>
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<tr>
<td>543</td>
<td>Public Expenditures</td>
<td>3</td>
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<td>544</td>
<td>Taxation</td>
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<td>545</td>
<td>Social Choice and Welfare</td>
<td>3</td>
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<tr>
<td>545A</td>
<td>Seminar in Applied Econometrics I: Cross Section and Panel Data</td>
<td>3</td>
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<tr>
<td>555</td>
<td>Economics of Industrial Organization</td>
<td>3</td>
</tr>
<tr>
<td>555A</td>
<td>Seminar on Applied Econometrics II: Time Series Analysis and Macroeconometrics</td>
<td>3</td>
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<tr>
<td>555B</td>
<td>Theory of the Firm</td>
<td>3</td>
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<td>571, 572</td>
<td>Topics in Economic Development I, II</td>
<td>3 each</td>
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<tr>
<td>575</td>
<td>Theory of International Trade</td>
<td>3</td>
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<tr>
<td>577</td>
<td>International Finance and Open Economy</td>
<td>3</td>
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<tr>
<td>578, 584</td>
<td>Topics in Labor Economics I, II</td>
<td>3 each</td>
</tr>
<tr>
<td>586</td>
<td>Seminar in Macro and Monetary Economics</td>
<td>3</td>
</tr>
<tr>
<td>597</td>
<td>Readings in Economics</td>
<td>Credit to be arranged</td>
</tr>
<tr>
<td>598</td>
<td>Research in Economics</td>
<td>Credit to be arranged</td>
</tr>
<tr>
<td>599</td>
<td>Workshop in Economics</td>
<td>Credit to be arranged</td>
</tr>
</tbody>
</table>
Education

At the master’s degree level, the Department of Education offers full-time programs for liberal arts graduates who desire elementary teacher certification (Master of Arts in Education) or secondary teacher certification (Master of Arts in Teaching). Each program requires a minimum of 30 units of study, though additional course work is generally required to qualify for the Missouri teaching certificate. Those seeking elementary teacher certification may have to complete 49 credit hours in Professional Education coursework. Those seeking secondary teacher certification may have to complete 30 credit hours in Professional Education coursework plus 12 credit hours in their teaching major.

Additionally, our Innovative Teacher Certification Masters program is for classroom teachers seeking teacher certification for middle or high school. Candidates must hold an undergraduate degree and current teaching position in a middle or high school as an uncertified teacher. The course work will vary based on the level of certification sought and the subject area course work to be completed.

For students who already have teacher certification or who do not seek certification, the Department offers a 30–36-unit master’s degree program that can be completed through part-time evening study. The Instructional Process Program has specializations in professional development and middle school science.

Doctoral study in education at Washington University is aimed at strengthening and deepening the student’s analytical understanding of education in both research and teaching. Our doctoral program focuses on two major stands of study: the Social Context of Educational Research or Science and Mathematics Education. Students are afforded an opportunity to build their own unique programs of study by combining concentrations in urban education and American culture studies, mathematics and science education, learning sciences, educational policy, or literacy. These concentrations are supplemented by core studies in history and methodology and a doctoral seminar shared by all students. Many courses have fieldwork and research components, opportunities to attend and present at local and national conferences, and seminars. Required and elective courses provide the student with a broad understanding of scholarship and research in education and prepare the student for the qualifying examination and dissertation research and writing.

Students admitted to the doctoral program are expected to be in residence during the period of their study for the degree. Several forms of financial aid are available to support this residential study. Residence is defined as enrollment for at least nine hours of course work each semester of the academic year. The doctoral student must earn a minimum of 72 semester hours beyond the bachelors degree. For a student entering with a masters degree, at least 48 hours are required. The
Department of Education views these as minimum requirements; additional course work may be necessary to meet special subject area or methodological needs. Additional information is available in the Department of Education doctoral program literature.

In addition to the general conditions controlling admission to graduate study listed in this Bulletin, the Department of Education requires applicants to meet further conditions before they are admitted to a degree or certificate program. All applicants are required to take the Miller Analogies Test or GRE, depending on the program. Residents of the St. Louis area may make an appointment to take the Miller Analogies Test on the Washington University campus. Out-of-town applicants may make arrangements to take the test at the university nearest them and request that their scores be sent to the Education office. Three letters of recommendation from college instructors or other individuals qualified to testify about intellectual and professional abilities are required of all applicants. Additional admission and completion requirements pertaining to those seeking teacher certification through graduate studies are explained in the departmental literature.

Descriptions of all programs, including admissions deadlines, are available from the Department of Education. Prospective students should address correspondence to the Admissions Office, Department of Education, Room 216, McMillan Hall, Washington University, Campus Box 1183, One Brookings Drive, St. Louis, Missouri 63130-4899 or contact Kimberly Shelton, Student Services Secretary: voice (314) 935-6707, FAX (314) 935-4982, email kshelton@artsci.wustl.edu.

**Educ**

4033 ... Video Microanalysis: Methods and Tools
- 3 units.

4052 ... Educational Psychology: A Focus on Teaching and Learning in School Settings
- 4 units.

4055 ... Central Topics in Learning Sciences Research
- 3 units

407 ..... Curriculum and Instruction in Modern Foreign Languages
- 3 units.

408 ..... Education and Psychology of Exceptional Children
- 3 units.

413 ..... Curriculum and Instruction in Art, K-12
- 3 units.

414 ..... Curriculum and Instruction in English
- 3 units

415 ..... Curriculum and Instruction in Science
- 3 units.

417 ..... Curriculum and Instruction in Mathematics
- 3 units.

418 ..... Curriculum and Instruction in Social Studies
- 3 units.

4210... Developing Community-Based Documentaries: Video Inquiry for Educators
- 3 units

4271 ... Health of the Child
- 2 units

428 ... History of Education in the U.S.
- 3 units

4280 ... History of Urban Schooling in the U.S.
- 3 units

4288 ... Higher Education in American Culture
- 3 units
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>4289</td>
<td>Neighborhoods, Schools and Social Inequality</td>
<td>3 units</td>
</tr>
<tr>
<td>4301</td>
<td>Historical Social Context of the American School</td>
<td>3 units</td>
</tr>
<tr>
<td>4312</td>
<td>Tools of Inquiry</td>
<td>3 units</td>
</tr>
<tr>
<td>4315</td>
<td>Culture, Language and the Education of Black Students</td>
<td>3 units</td>
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<tr>
<td>4344</td>
<td>Seminar in Black Social Science</td>
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<td></td>
<td><em>(Identical with African and African-Am Studies 434B)</em></td>
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<tr>
<td>4351</td>
<td>Reading and Reading Development</td>
<td>3 units</td>
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<tr>
<td>440</td>
<td>Women in the History of Higher Education and the Professions</td>
<td>3 units</td>
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<tr>
<td>4411</td>
<td>Social Statistics I</td>
<td>3 units</td>
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<tr>
<td>4412</td>
<td>Social Statistics Practicum</td>
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<td><em>(Identical with Social Thought and Analysis 444)</em></td>
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<tr>
<td>4413</td>
<td>Project Design for Math and Science Education</td>
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<td>4414</td>
<td>Learning Technologies for Math and Science</td>
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<tr>
<td>4415</td>
<td>Learning Sciences in Math and Science</td>
<td>3 units</td>
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<td>4451</td>
<td>Teaching Writing in School Settings</td>
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<tr>
<td>4511</td>
<td>Race, Ethnicity and Culture: Qualitative Inquiries into Urban Education I</td>
<td>3 units</td>
</tr>
<tr>
<td></td>
<td><em>(Identical with African and African-Am Studies 4511)</em></td>
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<tr>
<td>453</td>
<td>Sociology of Education</td>
<td>3 units</td>
</tr>
<tr>
<td></td>
<td><em>(Identical with Social Thought and Analysis 412)</em></td>
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<tr>
<td>459F</td>
<td>Philosophies of Education</td>
<td>3 units</td>
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<tr>
<td>4608</td>
<td>The Education of Black Children and Youth in the United States</td>
<td>3 units</td>
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<tr>
<td>461</td>
<td>Intro to Educational Tests and Measurements</td>
<td>3 units</td>
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<tr>
<td>4611</td>
<td>Psychological Tests and Measurements</td>
<td>3 units</td>
</tr>
<tr>
<td>461B</td>
<td>The Construction and Experience of Black Adolescence</td>
<td>3 units</td>
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<tr>
<td>462</td>
<td>Politics of Education</td>
<td>3 units</td>
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<tr>
<td>4621</td>
<td>The Political Economy of Urban Education</td>
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<tr>
<td>463</td>
<td>Economics of Education</td>
<td>3 units</td>
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<tr>
<td>4681</td>
<td>Teaching Reading in the Elementary School</td>
<td>3 units</td>
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<tr>
<td>4699</td>
<td>Adolescent Psychology in School Settings</td>
<td>3 units</td>
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<tr>
<td>470</td>
<td>Language Learning and Instruction</td>
<td>3 units</td>
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<tr>
<td>4731</td>
<td>Elementary School Mathematics</td>
<td>3 units</td>
</tr>
<tr>
<td>4741</td>
<td>Elementary Science: Content, Curriculum, and Instruction</td>
<td>3 units</td>
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<tr>
<td>4751</td>
<td>Elementary Social Studies: Context, Curriculum and Instruction</td>
<td>2 units</td>
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<tr>
<td>4771</td>
<td>Arts and Aesthetics: A Means of Communication</td>
<td>3 units</td>
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<tr>
<td>481</td>
<td>History of Education in the United States</td>
<td>3 units</td>
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<td><em>(Identical with History 481 and AMCS 481)</em></td>
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<tr>
<td>4821</td>
<td>The Teaching-Learning Process in the Secondary School</td>
<td>3 units</td>
</tr>
<tr>
<td>4831</td>
<td>The Teaching-Learning Process in the Elementary School</td>
<td>3 units</td>
</tr>
<tr>
<td>4841</td>
<td>Elementary Methods Field Experience</td>
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<tr>
<td>4843</td>
<td>Field Experience Seminar</td>
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<td><em>(Identical with Social Thought and Analysis 484)</em></td>
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<tr>
<td>489</td>
<td>Education and Public Policy in the United States</td>
<td>3 units</td>
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<td><em>(Identical with Social Thought and Analysis 489)</em></td>
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<tr>
<td>4891</td>
<td>The Science and Politics of Testing in the United States</td>
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<td>4911</td>
<td>Student Teaching in the Elementary and Preschool</td>
<td>8 units</td>
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<tr>
<td>492</td>
<td>Student Teaching in the Secondary School</td>
<td>8 units</td>
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<td><em>(Identical with Social Thought and Analysis 492)</em></td>
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<tr>
<td>4922</td>
<td>Student Teaching in the Middle School</td>
<td>8 units</td>
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<tr>
<td>494</td>
<td>Student Teaching in Kindergarten Through Twelfth Grade</td>
<td>8 units</td>
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<tr>
<td>4951</td>
<td>Middle School Philosophy and Organization</td>
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<tr>
<td>4952</td>
<td>Middle School Curriculum and Instruction</td>
<td>3 units</td>
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<td>498</td>
<td>Internship Seminar</td>
<td>6 units maximum</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Units</td>
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<td>500</td>
<td>Independent Work</td>
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<tr>
<td></td>
<td>Credit variable; 6 units maximum.</td>
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<td>503</td>
<td>Foundations of Educational Research</td>
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<td>5055</td>
<td>Power and Conflict in Mathematics and Science Education</td>
<td>3</td>
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<tr>
<td>516</td>
<td>Design of Educational Research</td>
<td>3</td>
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<tr>
<td>5230</td>
<td>Professional Development in Mathematics and Science</td>
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<tr>
<td>5231</td>
<td>Curriculum and Evaluation: A Review in Mathematics</td>
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<td>5232</td>
<td>Learning Sciences Practicum in Math/Science/Technology</td>
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<tr>
<td>5233</td>
<td>Modeling and Inquiry in Mathematics and Science</td>
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<tr>
<td>525</td>
<td>Diagnosis and Correction of Reading Disabilities</td>
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<tr>
<td>5282</td>
<td>Action Research and Other Forms of Reflective Practice</td>
<td>3</td>
</tr>
<tr>
<td>531A</td>
<td>Computer Applications in Education</td>
<td>3</td>
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<tr>
<td>5521</td>
<td>Counseling Skills Training Laboratory for Noncounselors</td>
<td>3</td>
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<tr>
<td>557</td>
<td>Contemporary Issues in Education and Society</td>
<td>3</td>
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<td>5681</td>
<td>Reading in Content Areas</td>
<td>3</td>
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<tr>
<td>590</td>
<td>Research in Education</td>
<td>3</td>
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<tr>
<td>597</td>
<td>Adult Learning, Strategies and Practices</td>
<td>3</td>
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<td>599</td>
<td>Seminars in Education</td>
<td>3</td>
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<tr>
<td>5991</td>
<td>Principles and Methods of Qualitative Research I</td>
<td>3</td>
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<td>5992</td>
<td>Directed Studies in Qualitative Research</td>
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<tr>
<td>6901</td>
<td>Doctoral Seminar</td>
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English and American Literature

The Department of English and American Literature awards the degrees of Master of Arts and Doctor of Philosophy in English and American Literature and Doctor of Philosophy in English and Comparative Literature. Applicants for admission apply to the Ph.D. program. They should present at least 18 semester hours of advanced undergraduate work in English literature, scores on the verbal aptitude and English literature subject test of the Graduate Record Examinations, as well as the three letters of reference and other supporting material required by the Graduate School. All of this should be submitted by December 15 to meet the department’s internal deadline. In addition, applicants should send, as a sample of their writing, a recent paper on a literary topic. This should be sent directly to the Department of English by December 15. Any questions about application procedures or requests for additional information should be addressed to the Director of Graduate Studies, Department of English, Washington University, Campus Box 1122, One Brookings Drive, St. Louis, MO 63130-4899, voice (314) 935-5120, FAX (314) 935-7461.

In addition to resident faculty, a generous bequest allows the department to bring distinguished scholars and writers to campus on a regular basis. The appointment as Visiting Hurst Professor has been held by such distinguished writers and critics as Maxine Kumin, Ishmael Reed, Gary Snyder, Irving Howe, Robert Pinsky, Marilynne Robinson, W.S. Merwin, Angela Carter, Derek Walcott, Robert Coover, Carol Muske, Joy Williams, Thomas Laqueur, Fanny Howe, Thom Gunn, Michael Hardt, Salman Rushdie, and Slavoj Zizek.

Program of Study

The doctoral program in English builds on three foundational years. In their first year of graduate study, students take seven classes to acquaint themselves with a wide range of literary periods and genres, critical methodologies, research approaches, and pedagogical styles. Before their second year, students are closely advised on a course of study that moves them toward a field of specialization, which they declare at the end of their second year. The third year is devoted to preparation for the major field exam. In individual tutorials with their three advisors, students develop three qualifying essays and master a reading list that combines breadth of coverage with greater specialization. The major field exam takes place in the spring of the third year and completes the foundation. It is followed in the fall of the fourth year by a dissertation seminar that facilitates the transition from the major field to the dissertation.

The normal schedule for students entering in the first year and proceeding to admission as Ph.D. candidates in the second year thus looks as follows:
Lecturers
Joan Brockmann
Bethany Daniels
Jeff Hamilton
Dillon Johnston
Stephanie Pippin
Rachel Sullivan
Charles Sweetman

Director, Creative Writing Program
Mary Jo Bang

Hurst Senior Writer-in-Residence
Kathryn Davis

 Writers-in-Residence
Marshall Klimasewiski
Kellie Wells

Director of Writing and Head of Writing I
Heidi Kolk

Professors Emeriti
Donald Finkel
Richard Hazelton
Naomi Lebowitz
William Madsen
Carter Revard
Daniel Shea
Richard Stang
Jarvis Thurston
Burton Wheeler

Year 1: 4 courses in fall, 3 in spring; no teaching;
summer: language study

Year 2: 3 courses in fall (including pedagogy seminar);
2 courses in spring, teach one class

Year 3: 3 tutorials in preparation for major field exam
(6 credits); teach one class in fall and one in spring; take major field exam in spring

Year 4: Dissertation seminar in the fall

The Graduate School expresses this in terms of credits: 72 are required for the Ph.D. beyond the B.A. Most courses are three credits; therefore in the first three years up to 51 credits are earned by coursework, independent study, or directed reading. Three or more classes should be 500-level seminars. The remaining credits are awarded automatically as research credits: from the second year the student seeks advice on enrolling for these extra credits, in order to have completed formal requirements by the fourth year. A Master of Arts degree can be completed in two ways: one requiring 24 units of course work and a thesis, the other requiring 30 units of course work and the submission of two revised course papers in lieu of a thesis. Progress toward degree is reviewed annually by the Graduate Committee and the faculty.

The department believes that intellectual and professional progress depends on encounters with historical, generic, and disciplinary difference as well as competence in an area of specialization. To that end, we ask our students to take two classes in literature before 1780 and two in literature after 1780. We actively encourage students to take classes in other departments and direct them toward such opportunities.

Students may fulfill the language requirement through demonstrating competence in two languages or proficiency in one. Tests may be arranged to satisfy the requirement. Alternatively, students may demonstrate “competence” by taking courses in each of two languages at the 200- or 300-level or they may demonstrate “proficiency” by taking one course at the 400- or 500-level.

After having passed the major field exam, students have their fourth and fifth years available for the writing of the dissertation, with the option of a sixth year if needed. Some students may decide to enter the job market in the fall of the fifth year, if they have a good portion of the dissertation completed; others choose to wait until the sixth year. The Dissertation Fellowship is available for the final year of dissertation work, which frees students from teaching responsibilities at a crucial time.

Students who wish to receive a joint Ph.D. degree with Comparative Literature may do so by fulfilling that program’s requirements for the joint degree. For information, please contact Comparative Literature, Washington University, Campus Box 1107, One Brookings Drive, St. Louis MO 63130, voice (314) 935-5170, FAX (314) 935-5139.
LITERATURE

E Lit

402 ..... Introduction to Graduate Studies: Research and Methodology 3 units.

403,404 ... Topics for Writers 3 units each.

407 ..... Old English 3 units. (Identical with Linguistics and Medieval and Renaissance Studies 407)

408 ..... Old English Literature 3 units. (Identical with Linguistics 4081 and Medieval and Renaissance Studies 408)

411 ..... Old and Middle English Literature 3 units.

412 ..... 16th-Century English Literature 3 units.

413 ..... 17th-Century English Literature 3 units.

415 ..... 18th-Century English Literature 3 units.

4161 ... English Literature of the Early Romantic Period: Blake, Wordsworth, and Coleridge 3 units.

4171 ... English Literature of the Later Romantic Period: Byron, Shelley, and Keats 3 units.

418 ..... English Literature of the Victorian Period 3 units.

423,424 ... Topics in American Literature I and II 3 units each.

4232 ... Slavery and the American Literary Imagination 3 units. (Identical with African and Afro-American Studies 435, American Cultural Studies 511, and Literature and History 471)

4241 ... In the Kingdom of Swing – Black American Culture and the 1930s 3 units. (Identical with African and Afro-American Literature 4241 and American Cultural Studies 510)

425 ..... Early American Literature 3 units.

426 ..... The American Renaissance 3 units.

427 ..... The Rise of Modern American Literature 3 units.

431 ..... English Drama Exclusive of Shakespeare to 1642 3 units. (Identical with Drama 431)

433 ..... Studies in the Drama after 1660 3 units. (Identical with Drama 433)
Modern Poetry 3 units.

The English Novel of the 18th Century 3 units.

The English Novel of the 19th Century 3 units.

The Modern Novel 3 units. (Identical with Comparative Literature 458)

The Shaping of Modern Literature: Themes and Major Figures 3 units each.

Topics in English Literature I and II 3 units each.

Topics in English Literature and History 3 units. (Identical with Literature and History 465)

Topics in American Literature and History 3 units. (Identical with Literature and History 472)

Topics in World Literature and History 3 units. (Identical with Literature and History 495)

Topics in World Literature and History 3 units. (Identical with Literature and History 496)

Introduction to the Study of the English Language 3 units. (Identical with Linguistics 471)

History of the English Language 3 units. (Identical with Linguistics 472)

History of Literary Criticism 3 units. (Identical with Comparative Literature 475)

Topics in Literary Criticism 3 units.

Topics in Rhetoric 3 units.

Selected English Writers I and II 3 units each.

Selected American Writers I and II 3 units each.

Chaucer 3 units.

Spenser 3 units.

Milton 3 units.

Shakespeare 3 units.

Independent Study Credit to be arranged.

Proseminar in Bibliography and Research 3 units.

Seminar: The Middle Ages 3 units each.

Seminar: The Renaissance 3 units each.

Seminar: The 17th-Century 3 units each.

Seminar: The 18th-Century 3 units each.

Seminar: The 19th-Century 3 units each.

Seminar: American Literature 3 units each.

Seminar: The 20th-Century 3 units each.

Methods of Literary Study 3 units. (Identical with Comparative Literature 550)

Seminar in Literary Forms and Modes 3 units each. (Identical with Comparative Literature 558, 559)

Seminar in Literary Criticism I and II 3 units each. (Identical with Comparative Literature 563, 564)

Old English Poetry 3 units.

Directed Reading Credit to be arranged.

Research Credit to be arranged.
The Department of Germanic Languages and Literatures offers the degrees of Master of Arts and Doctor of Philosophy in German Literature and in cooperation with the Committee on of Comparative Literature the Doctor of Philosophy in German and Comparative Literature. Courses in the department carry graduate credit only for those students who have already completed at least 24 upperclass units of undergraduate work in German, and whose reading and speaking ability are advanced. Applicants must present scores on the aptitude section of the Graduate Record Examination.

The Master of Arts degree requires 30 units of graduate coursework chosen in consultation with the departmental graduate advisors. These units must include German 450, 505 and either 456 or 457. In addition, students must demonstrate reading proficiency in a language other than German or English, teach 2 semesters or the equivalent of German language courses, and pass an hour long general oral examination based on a reading list submitted by the student. In certain cases the presentation of a master’s thesis may substitute for the oral examination.

The Doctor of Philosophy degree in German Literature requires a total of 72 units, 60 of which are in regular graduate courses including German 450, 456, 457, 505, one seminar in Medieval Literature in the original, and an additional course in the literature prior to 1700. The remaining 12 units are normally earned through dissertation research. Additional requirements include presentation of a qualifying paper demonstrating the ability to work with literature and to handle research materials, the equivalent of 4 semesters of teaching, demonstration of reading knowledge in two languages other than German or English, and passing of comprehensive examinations on aspects of literary theory, a figure, and a period. Reading knowledge of Latin is required for the students who make the Middle Ages or the Renaissance their major field. Contact the department for a detailed description of the graduate program.

German and Comparative Literature

The combined Ph.D. program in German and Comparative Literature calls for 48 units of course work in German, 12 units in Comparative Literature, and 12 units of literature courses in one or more languages other than the major literature. Graduate students in this program will teach 6 units or the equivalent in Comparative Literature and 3 semesters or the equivalent in German. Comprehensive examinations are patterned after those required in the German Department, but are modified to test the student’s expertise in Comparative Literature as well.

Coursework in Other Departments

Students in the A.M./Ph.D. program may take up to 12 units in other areas; students in the A.M. program may only take up to 6 units. Of special interest are graduate offerings in Romance Languages, English, Comparative Literature, History, Philosophy, Art, Art History, Music, and Women and Gender Studies.
Ger

428 .... German Romanticism, 1790-1830  3 units.
435 .... German Literature and Fascism, 1933-1945  3 units.
4381 .... Contemporary Literature Since 1965  3 units.
450 .... Methodology and Bibliography  3 units.
456 .... History of the German Language  3 units.
(Identical with Linguistics 456)
457 .... Structure of the German Language  3 units.
(Identical with Linguistics 457)
458 .... Topics in Middle High German Grammar and Text  3 units.
490 ... Topics in German Film and Its Cultural Conditions  3 units.
4911 ...... Seminar in Culture Studies  3 units.
494 ...... Seminar on German Film  3 units.
500 ...... Independent Work  6 units maximum.
5012 Advanced Pedagogy Seminar: Integrating Technology into Language  3 units.
(Identical with French and Spanish 5013)
505 ...... Seminar in the Teaching of German  3 units.
520 ...... Seminar in Medieval Literature  3 units.
521 ...... Seminar in Reformation and Humanism  3 units.
522 ...... Seminar in Baroque  3 units.
523 ...... Seminar in Literature of the Early 18th Century  3 units.
524 ...... Seminar in Literature of the Late 18th Century  3 units.
525 ...... Seminar in Romanticism  3 units.
526 ...... Seminar in Literature of the 19th Century  3 units.
527 ...... Seminar in Literature of the 20th Century  3 units.
528 ...... Literary Seminar  3 units.
529 ...... Seminar in Cultural Theory  3 units.
550 ...... Methods of Literary Study  3 units.
(Identical with Comparative Literature 550)
580 ...... Research for Master's Thesis Credit to be arranged.
590 ...... Research Credit to be arranged.
History

The Department of History offers work toward a Ph.D. degree. There are no requirements for admission to the program beyond those of the Graduate School of Arts and Sciences.

Candidates for the Ph.D. degree prepare, mainly through two or three years of proseminars and research seminars, for a qualifying examination in three broad fields of history before proceeding to the dissertation. These fields include: African, European, Britain and Empire, Latin American, American, Asian, African-American, Women’s, Medical and Legal history. The candidate’s need for linguistic and quantitative skills is determined by the Qualifying Examination Committee. The minimum requirement is competence in (1) the language in which it is proposed to do research and (2) one other language (not English) or a quantitative or other technical skill.

Doctoral candidates teach in their second and third years as a regular, supervised part of their training.

The Ph.D. program is described in detail in the departmental Graduate Handbook, and is available from the History Department—which is located in Busch Hall, room 118; by phone at 314-935-5450; by fax at 314-935-4399; and more accessibly at http://artsci.wustl.edu/~history.

Hist

416 ..... Messianic Movements and Ideas in Jewish History 4 units.

427 ..... Topics in the History of Developing Areas 4 units.

428 ..... Topics in the History of Developing Areas 4 units.

4351 ... History and Anthropology 3 units. (Identical with Anthropology 435)

436 ..... Society in Medieval Europe After 1075 4 units.

439 ..... History of Biology and Related Sciences, from Antiquity through the 17th Century 3 units. (Identical with Biology 435)

440 ..... History of Biology and Related Sciences, from the 18th Century to the Present 3 units. (Identical with Biology 436)

4411 ... European Intellectual History; The Age of Enlightenment 4 units.

442 ..... European Intellectual History, 1789-1890 4 units.

443 ..... European Intellectual History, 1890-1930 4 units.

444 ..... European Intellectual History, 1930-1970 4 units.

445 ..... Modern France 4 units. (Identical with Comparative Literature 414)

446 ..... Modern Germany 4 units.

447 ..... The Origins and Development of Freud's Thought, 1866-1939 3 units.

448 ..... Russian History to the 18th Century 4 units.

449 ..... Imperial Russia 4 units.
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<th>Course Title</th>
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<td>Seminar in Theory and Methods of Literature and History</td>
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<tr>
<td>457</td>
<td>Topics in European History</td>
<td>4</td>
</tr>
<tr>
<td>459</td>
<td>Topics in European History</td>
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<tr>
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<td>462</td>
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<td>4</td>
</tr>
<tr>
<td>4701</td>
<td>Modern American Politics, 1877-1987</td>
<td>4</td>
</tr>
<tr>
<td>475</td>
<td>Law and Social Change in Early America, 1600-1800</td>
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<td>4740</td>
<td>Imagining the American West</td>
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<td>476</td>
<td>Law and Social Change in 19th- and 20th-Century America</td>
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<td>477</td>
<td>Topics in Law and Liberty</td>
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<td>480</td>
<td>American Labor</td>
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<td>History of Education in the United States</td>
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<td>482</td>
<td>Afro-American History: The 20th Century</td>
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<td>483</td>
<td>American Urban History I</td>
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<td>Topics in American History</td>
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<td>4870</td>
<td>Topics in American Politics</td>
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<td>488</td>
<td>Topics in American History</td>
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<td>489-498</td>
<td>Advanced Seminars in History</td>
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<tr>
<td>514</td>
<td>Teaching in History</td>
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<tr>
<td>519</td>
<td>Independent Reading (first year)</td>
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<tr>
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<tr>
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<td>Proseminar in Chinese Intellectual History</td>
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<td>526</td>
<td>Proseminar in Modern Chinese Social History</td>
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<td>Proseminar in Modern Chinese History</td>
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<td>528</td>
<td>Proseminar in Japanese History</td>
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<td>Proseminar in Ancient History</td>
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<td>Proseminar in Early Modern Europe</td>
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<tr>
<td>536</td>
<td>Proseminar in British History</td>
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<tr>
<td>537</td>
<td>Proseminar in Russian History</td>
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<tr>
<td>538</td>
<td>Proseminar in Selected Topics in European History</td>
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</tr>
<tr>
<td>539</td>
<td>Proseminar in European Intellectual History</td>
<td>4</td>
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<tr>
<td>540</td>
<td>Proseminar in History: The Writing of History</td>
<td>4</td>
</tr>
<tr>
<td>541</td>
<td>Proseminar in Colonial American History</td>
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<tr>
<td>5411</td>
<td>Introduction to Graduate Study in American History, to 1865</td>
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</tr>
<tr>
<td>5412</td>
<td>Introduction to Graduate Study in American History, 1865 to Present</td>
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<tr>
<td>542</td>
<td>Proseminar in Early National United States History</td>
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<tr>
<td>543</td>
<td>Proseminar in 19th-Century United States History</td>
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<tr>
<td>544</td>
<td>Proseminar in 20th-Century United States History</td>
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</tr>
<tr>
<td>545</td>
<td>Proseminar in Selected Topics in American History</td>
<td>4</td>
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<tr>
<td>546</td>
<td>Proseminar in Latin American History</td>
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<tr>
<td>5482</td>
<td>Proseminar in Historiography</td>
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<tr>
<td>550</td>
<td>Research Seminar in Chinese History</td>
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<tr>
<td>551</td>
<td>Seminar in Ch'ing History</td>
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</table>
552 ..... Seminar in Modern Chinese History 4 units.  
  (Identical with Asia 552)
553 ..... Seminar in Japanese History 4 units.  
  (Identical with Asia 553)
554 ..... Seminar in the Literature and History of Japan 4 units.  
  (Identical with Asia 561, Comparative Literature 567, Japan 561)
555 ..... Seminar in Latin American History 4 units.  
  (Identical with Latin America 555)
556 ..... Seminar in Latin American History 4 units.  
  (Identical with Latin America 556)
565 ..... Seminar in Medieval History 4 units.
566 ..... Seminar in Medieval English History 4 units.
570 ..... Seminar in Early Modern European History 4 units.
573 ..... Seminar in Modern European History 4 units.
574 ..... Seminar in Modern European History 4 units.
575 ..... Seminar in Modern European History 4 units.
579 ..... Seminar in Modern British History 4 units.
580 ..... Seminar in Early Modern English History 4 units.
581 ..... Seminar in Early Modern Russian History 4 units.
582 ..... Seminar in Modern Russian History 4 units.
590 ..... Seminar in American Colonial History 4 units.
591 ..... Seminar in American History 4 units.
592 ..... Seminar in Early National American History 4 units.
593 ..... Seminar in American History 4 units.
594 ..... Seminar in History of American Foreign Relations 4 units.
595 ..... Seminar in American Social and Cultural History 4 units.
596 ..... Seminar in American Urban History 4 units.
The A.M. Program
Program Director and Adjunct Assistant Professor
Ronald E. Gribbins
(Human Resources Management)

Administrative Committee Members
David Dodd
(Psychology)
Judy Lamb (Education)
Michael Merbaum
(Psychology)
Donald E. Strickland
(Social Thought and Analysis)
Sharon Tucker (Human Resources Management)

Participating Faculty
Professors and Lecturers
Salvador Alatorre
Connie Anthony
Timothy Bahr
Nicholas Baloff
Glenn Detrick
Marlowe Erickson
Louis Forbringer
Norm Handshear
Sherri Harsh-Porter
Rose Jonas
Dale Kreienkamp
Judy Lamb
Dennis Lambert
Andrea Maddox-Dallas
Eric Marquardt
Charles Miller
Diana Moeller
Rick Neminik
Walter Nord
Anne Offner-Arnot
Chris Osborn
Nancy Small
Christie Turpin
Hall Wallach

Human Resources Management

The Master of Arts degree program in Human Resources Management is designed to prepare students for careers in the fields of human resources management and organizational development. Administered jointly by the Graduate School of Arts and Sciences and University College, the HRM program offers courses in professional and technical aspects of human resources management and in the more general area of organizational development. Coursework, taught by faculty in related academic disciplines and specialists from the community, is offered on a part-time basis during evening and weekend hours.

Admission to the graduate program in Human Resources Management is open to qualified applicants with a baccalaureate degree or the equivalent from an accredited institution of higher learning. Applicants must submit completed application materials for joint Graduate School-University College programs, a $35 non-refundable application fee, and recent results from the Miller’s Analogy Test. Admission preference will be given those applicants with previous coursework in economics, psychology, accounting, and statistics. Strong writing skills are essential for admission to the program. Qualified applicants are admitted initially to University College; admission to the Graduate School as an A.M. degree candidate requires satisfactory completion of two HRM courses.

The requirements for the degree are the completion of 36 units of graduate-level course work including the following:

Foundation Courses:
- 21st Century Perspectives on Organization and Human Resources (HRM 506)
- Organizational Behavior and Administration (HRM 520)
- Accounting Principles and Practices for Human Resources Management (HRM 528)
- Managerial Economics (HRM 540)
- Research Methods in Human Resources Management (HRM 510)

Elective Courses: a combination of 21 units, drawn from the human resources professional focus area and/or the organizational development focus area, that meet the student’s career objectives.

Capstone Course: a project-oriented course that integrates previous course work through an applied project (HRM 514).

Please contact University College, (314) 935-6700, for detailed information about program requirements, courses, and admission procedures, or visit our website at www.ucollege.wustl.edu.
### Selected Courses

#### Human Resources Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>435</td>
<td>Individual and Organizational Introspection</td>
<td>2</td>
</tr>
<tr>
<td>470</td>
<td>Compensation Management</td>
<td></td>
</tr>
<tr>
<td>475</td>
<td>Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>515</td>
<td>Building an Effective Mentoring Program</td>
<td>1.5</td>
</tr>
<tr>
<td>516</td>
<td>Career Development: Frameworks, Strategies and Tactics</td>
<td>1.5</td>
</tr>
<tr>
<td>521</td>
<td>HR Information Systems: Approaches and Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>530</td>
<td>Organizational Development</td>
<td>3</td>
</tr>
<tr>
<td>531</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>536</td>
<td>Health and Safety Issues in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>539</td>
<td>Coaching: Strategies and Techniques for Managers</td>
<td>3</td>
</tr>
<tr>
<td>541</td>
<td>Executive Compensation and Business</td>
<td>1.5</td>
</tr>
<tr>
<td>5461</td>
<td>Managing Human Capital - The Impact of Globalization</td>
<td>1.5</td>
</tr>
<tr>
<td>550</td>
<td>Effective Self-Management in Organizations</td>
<td>2</td>
</tr>
<tr>
<td>554</td>
<td>Mergers and Acquisitions: Challenges for Human Resources Management</td>
<td>1.5</td>
</tr>
<tr>
<td>555</td>
<td>Union Campaigns: Strategies, Tactics and Outcomes</td>
<td>1.5</td>
</tr>
<tr>
<td>562</td>
<td>Group Process in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>564</td>
<td>Workplace Harassment: Sources, Issues and Remedies</td>
<td>1.5</td>
</tr>
<tr>
<td>570</td>
<td>Employee Benefits</td>
<td>1.5</td>
</tr>
<tr>
<td>571</td>
<td>Legal Aspects of Human Resources Management</td>
<td>3</td>
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<tr>
<td>574</td>
<td>Human Resources Strategic Planning</td>
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#### EDUCATION

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>4021</td>
<td>Leadership Skills for Women Administrators</td>
<td>3</td>
</tr>
<tr>
<td>5521</td>
<td>Counseling Skills Training for Non-Counselors</td>
<td>3</td>
</tr>
<tr>
<td>597</td>
<td>Techniques for Teaching Adults</td>
<td>3</td>
</tr>
</tbody>
</table>

#### BUSINESS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>502</td>
<td>Ethical Issues in Managerial Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>509</td>
<td>Collective Bargaining and Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>523</td>
<td>Power and Politics in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>524</td>
<td>Negotiation</td>
<td>3</td>
</tr>
</tbody>
</table>
International Affairs

The 30 unit Master of Arts degree program in International Affairs is administered jointly by the Graduate School of Arts and Sciences and University College. Designed for part-time graduate students, the interdisciplinary curriculum reflects the pressing need for better understanding of the international issues that increasingly affect our world. Current degree candidates have careers in business, banking, law, journalism, military service, education, civil service, public relations, and international services.

Admission to the graduate program in International Affairs is open to qualified applicants with a baccalaureate degree or the equivalent from an accredited institution of higher learning. Applicants must complete all application materials of the Graduate School of Arts and Sciences, including a statement of purpose describing their interest in the program and a non-refundable $35 application fee. The Graduate Record Examination is not required. While no specific undergraduate courses are required as prerequisite to the International Affairs program, previous course work in economics, history, and/or political science is strongly recommended. Preference will be given to those applicants with a strong undergraduate record and several years of professional and international experience. Strong writing skills are essential for admission. Qualified applicants are initially admitted to University College. Full admission to the Graduate School as an A.M. degree candidate is based on successful completion of two International Affairs courses and the written recommendation of faculty and the program director.

The basic requirement for the A.M. degree involves the successful completion of 30 units of graduate course work. The course selection must include: the interdisciplinary core seminar, Current Issues in International Affairs (U85 550), offered annually in the Fall semester; two “international issues” courses; and two “area studies” courses, (see course listings below). Also, degree candidates must meet a foreign language requirement, which can be met with a minimum of two semesters of college-level course work in the given language. Finally, students must complete either a one-term Directed Research Project (3 units) or, exceptionally, a two-term Master’s Thesis (6 units). In either case, the student will work in close contact with a faculty advisor, and the completed research paper or thesis is to be defended as part of an oral examination that culminates the program of study.

The program also features an Advanced Certificate, which requires completion of 15 units of graduate-level course work. Two of the courses must involve “international issues,” and two must be drawn from “area studies.” The fifth course may be chosen from IAP seminars or approved graduate-level electives.

Most International Affairs courses are taught during the evening, with one class meeting of 2 1/2 hours per week. Some elective courses may meet during the late afternoon, during the weekend, or in a one-week “intensive” all-day format. Most courses carry 3 units.

Please contact University College, (314) 935-6778, or visit our website at www.ucollege.wustl.edu for additional information.
Required Courses

Current Issues in International Affairs
Directed Research Project

International Issues

International Law and the Use of Force
Globalization and National Politics
Law and International Politics 3 units.

Politics of Oil: Dependency, Conflict, and Transition
Politics of Global Finance
International Security
American Primacy in the World
Humanitarian Intervention in International Society
The Ball is Round: The Global Culture of Soccer
International Peacekeeping
International Organizations
Methods and Research Design in International Studies

Area Studies

Readings on the Arab-Israeli Conflict
The Arab Question and French-American Relations
The Arc of Crisis Revisited: The Middle East and the Caspian Basin
The Native Dimension in Modern Japanese Culture
Migration in Europe
Old Europe: The Quality of Life
Islamic and Near Eastern Studies

This A.M. Program offers students the opportunity for interdisciplinary study of the languages, history, and cultures of the Near East and the Islamic world. It is designed for students with little or no previous undergraduate training in these areas and is intended for those seeking careers in secondary education, law, business, government, journalism, or private agencies whose work touches upon some aspect of the Near East or Islamic world. Alternatively, it serves the needs of individuals who wish to obtain a broad grounding in the field in order to pursue a subsequent doctoral program, specializing in a particular discipline related to Islamic and Near East Studies. In this latter case, the program assists students in selecting the disciplinary orientation needed for more advanced study.

Administration and Advising

The Master’s Program is overseen by a Graduate Committee composed of faculty from associated Departments and Programs. Students formulate individual programs in consultation with faculty advisors drawn from this Committee and other faculty from related Departments and Programs.

Degree Requirements

To receive an A.M. degree, students must normally complete 30 credits of language courses and graduate-level (400 and above) content courses approved by the Graduate Committee and successfully complete a final oral examination. Most courses are for three credit units. Degree candidates may transfer up to six units of related graduate-level course work from another university with the approval of the Graduate School.

Content Courses: At least 30 credits of graduate level courses (400 or above) are selected from associated departments and programs. Of these, three courses must be seminar courses that require substantial graduate papers.

Language Courses: Three years (or the equivalent) of an acquired (rather than native) Near Eastern language are required. Exposure to more than one Near Eastern language is encouraged.

Admission and Degree Candidacy

The graduate program in Islamic and Near Eastern Studies is open to qualified applicants with a baccalaureate degree from an accredited institution of higher learning. While recent college or university graduates are expected to have a cumulative grade point average of B (3.0 on a 4.0 scale) or better, the program recognizes that for those who have been out of college for some years prior academic performance is only one consideration. The total educational, professional, and volunteer experiences of applicants are also important.

A specific background in Near Eastern studies is not required for admission, but previous study in related areas of the humanities or social sciences is encouraged. Students are expected to possess strong skills in writing and critical thinking, so applicants must show evidence of satisfactory ability in these areas. Applicants who have limited writing or liberal arts experience may be asked to take several undergraduate courses prior to starting the master’s program.
Lecturers
Housni Bennis
(Arabic)
Hanaa Kilany
(Arabic)
Roshanack Shaery
(Persian)
Mohammad Warsi
(Hindi)

Professor Emerita
Patty Jo Watson
(Anthropology)

Applicants must submit official transcripts of all previous post-secondary work, GRE scores, a non-refundable $35 application fee, at least three letters of reference, a 500 word essay describing the applicant’s interest in the program, an example of written work, and the completed application form of the Graduate School of Arts and Sciences.

Full information on the faculty and curriculum associated with the program is contained in “A Guide to Programs in Jewish, Islamic and Near Eastern Studies,” available from Washington University, Campus Box 1121, voice (314) 935-8567, email jines@artsci.wustl.edu
Jewish Studies

The Graduate Program in Jewish Studies at Washington University in St. Louis is an interdisciplinary program that draws upon the strength of the university in Jewish Studies as well as the rich resources in other areas. Graduate students generally focus on biblical studies, rabbincis, and/or history. The core faculty span the spectrum of academic research: Hebrew Bible; rabbincis; classical interpretation of Scripture; medieval, early modern and modern Jewish history; Yiddish literature; Modern Hebrew literature; and cultural studies. The Graduate Program in Jewish Studies is designed to provide rigorous integrated training and to meet each student’s individual interests in preparation for careers and for further academic and professional training in Jewish Studies, Jewish communal work, education, journalism, and law. For students who wish to pursue doctoral studies, the program assists in obtaining the disciplinary orientation for more advanced study.

The Graduate Program grants the A.M. in Jewish Studies. A Ph.D. in History with a specialization in Jewish history is also available through the History Department at Washington University. Applicants to the A.M. program must show proficiency in Hebrew language equivalent to one to two years of college study. Students without the equivalent of third year college Hebrew will be required to take it as part of their program of study. The general admissions standards established by the Graduate School of Arts and Sciences must also be fulfilled for acceptance.

Degree requirements include:

1) A minimum of 30 units of graduate credit, which may include up to 6 units transferred from another institution.
2) Ability to use Hebrew source material and scholarly articles, to be demonstrated in a research seminar offered for graduate students in the program, in which a major research paper will be written.
3) A second major research paper to be written either in a second seminar or in an independent study to be supervised by one of the faculty associated with the program.

Applicants must submit official transcripts of all previous post-secondary work, GRE scores, at least three letters of reference, a 500 word essay describing the applicant’s interest in the program, an example of written work, and the completed application form of the Graduate School of Arts and Sciences.
Assistant Professors
Asad Ahmet (Arabic; Religious Studies)
Cathleen Fleck (Art History)
Erin McGlothlin (Germanic Languages and Literatures)
Nancy Reynolds (History; Jewish, Islamic and Near Eastern Studies)

Lecturers
Giore Etzion (Hebrew)
Rami Pinsberg (Hebrew)

Professors Emeriti
Henry Berger (History)
Joseph R. Rosenbloom (Jewish, Islamic and Near Eastern Studies)
Patty Jo Watson (Anthropology)

Librarian
Deborah Katz

Full information on the faculty and curriculum associated with the program is contained in “A Guide to Programs in Jewish, Islamic and Near Eastern Studies,” available from Washington University, Campus Box 1121, voice (314) 935-8567, email jines@artsci.wustl.edu

Jewish History
405 ... Diaspora in the Jewish and Islamic Experience.
416.... Messianic Movements and Ideas in Jewish History
4442.. The Jewish Experience in Eastern Europe
4972.. Colonial Cities and the Making of Modernity
492 ... Seminar in Jewish Studies: Anti-Semitism
502 ... Proseminar in European Jewish History
5101 .. The Problem of Evil
5150 .. The Middle East in the Twentieth Century
5334 .. History of the Jews in Christian Europe
535C .. The Jews in the Modern World
536 .. History of the Jews in Islamic Lands

Jewish Thought
444 .. The Mystical Tradition in Judaism
5101 .. The Problem of Evil

Biblical Studies
400 .... Guided Readings in Northwest Semitic Inscriptions
4020... Jerusalem, The Holy City
433 .... Archaeology of the Ancient Near East
4331 .. Archaic States: Mesopotamia and Egypt

487 .... Readings in Midrash
4983.. Guided Readings in Akkadian
4984.. Guided Readings in Aramaic
505 ... Wisdom Literature of the Bible
545.. Mesopotamian Mythology
584... Intro to the Hebrew Bible
586... Topics in Biblical Hebrew Texts: Biblical Law
586... Topics in Biblical Hebrew Texts: The Book of Isaiah
586... Topics in Biblical Hebrew Texts: Jeremiah
586... Topics in Biblical Hebrew Texts: King David and His Court
586... Topics in Biblical Hebrew Texts: The Stories about Abraham and Sarah

Literature
420... Topics in Modern Hebrew Literature
548... Medieval Jewish Travelogues, Chronicles and Bibliographies
558... Modern Near Eastern Literatures
Rabbinics

440... Topics in Rabbinic Texts: Midrash

440... Topics in Rabbinic Texts: Mishnah and Gemara

501C... The Jews in the Ancient World

5082... Introduction to Rabbinic Judaism

536... History of the Jews in Islamic Lands

Seminar

4020... Jerusalem, The Holy City

405... Diaspora in the Jewish and Islamic Experience

5081... The American-Jewish Community: Organization and Service (Joint with Social Work)
**Liberal Arts Program**

The Master of Liberal Arts, a 30-unit degree program administered jointly by the Graduate School of Arts and Sciences and University College, is designed for the highly motivated, college-educated adult student who wants to pursue interdisciplinary graduate study in the liberal arts on a flexible part-time basis. Current candidates for the degree have careers in business, journalism, public relations, education, law, medicine and engineering. The M.L.A. program is not designed to further specific professional career advancement; instead, it encourages the study of the liberal arts for their own sake. Its goals are to create habits, skills, and motivations conducive to sustained learning and growth after the degree is attained.

Admission to the Master of Liberal Arts Program is open to qualified persons with a baccalaureate degree or the equivalent from an accredited institution of higher learning regardless of the area of their undergraduate major. While recent college or university graduates are expected to have a cumulative grade point average of B (3.0 on a 4.0 scale) or better, the M.L.A. program recognizes that prior academic performance for those who have been out of college for some years is only one consideration. The total educational, professional, and volunteer experiences of applicants are important as well. No specific undergraduate courses are required as prerequisite to the M.L.A. program. However, since M.L.A. students are expected to possess strong skills in writing and critical thinking, applicants must show evidence of satisfactory ability in these areas.

Applicants must submit completed application materials of the Graduate School of Arts and Sciences, including a statement of purpose describing their motivation and qualifications for pursuing this degree, a $35 non-refundable application fee, official transcripts of all previous college work, and at least two letters of reference. The Graduate Record Exam is not required. Qualified applicants are accepted into the program based on an assessment of the applicant’s ability to perform well in the program and benefit from it. Successful completion of two M.L.A. seminars and the recommendation of M.L.A. faculty are required for admission to candidacy for the Master of Liberal Arts degree.

The minimum requirements for the degree are the completion of 30 units of graduate work including at least 12 units from the M.L.A. seminars and a three-unit final project or, exceptionally, a 6-unit thesis, with approval from the Dean and the Program Coordinator. Students must also perform satisfactorily in an oral examination at the end of their program of study.

The Master of Liberal Arts curriculum includes a series of interdisciplinary seminars in four general areas of study: I) **Ideas and Inquiry** explores those ideas which have traditionally shaped the consciousness of people and their worlds; II) **The Creative Imagination** considers what creativity means to the artist, writer, or composer and the qualities of mind, personality, and environment which are associated with major acts of creation and innovation; III) **Science and Human Values** analyzes the ethical choices and policy issues posed by developments in the physical and social sciences; and IV) **Historical Understanding** examines present and past societies using a wide range of evidence from literature, art, science, music, archaeology, politics, and economics.
Specific seminar topics, some of which are listed below, vary each year. Most courses are 3 units. Please contact University College, (314) 935-6778, or visit our website at www.ucollege.wustl.edu for additional information.

**Ideas and Inquiry**
- The Legacy of Greece
- City Limits
- Origins of Thought in Classical Antiquity
- Literature of Catastrophe
- Critical Passages
- The Scriptures of Judaism, Christianity, and Islam
- The Portrait
- Enigmas
- Escapes
- Interiors
- Exploring Medieval Literature

**The Creative Imagination**
- Voices of Latin American Literature
- Vermeer and His World
- European Cinema Today
- Paint It Black: Understanding Film Noir
- Shakespeare’s Tragedies
- American Dream: History or Myth
- Hermeneutics: Interpretation of Sacred Texts

**Science and Human Values**
- Darwin, Marx, and Wagner
- Environmentalism and the Wild
- Literature of Affliction

**Historical Understanding**
- The Spanish Symbiosis: Christians, Moors, and Jews
- Vienna 1900
- Images of Empire
- Paris and New York
- Islam and Modernity
- Mark Twain: Humor and Politics in 19th-Century America

See the University College *Course Schedule* each semester for specific listings.
Chair and Professor
David Wright

Elinor Anheuser Professor of Mathematics
Guido Weiss

Professors
Albert Baernstein II
Quo-Shin Chi
Renato Feres
Ronald Freiwald
Gary R. Jensen
Steven G. Krantz
N. Mohan Kumar
John E. McCarthy
Rachel Roberts
Richard Rochberg
Stanley Sawyer
Edward Spitznagel
Nik Weaver
M. Victor Wickerhauser
Edward N. Wilson

Professors Emeriti
William M. Boothby
Lawrence Conlon
James A. Jenkins
Robert H. McDowell
Edward Nussbaum

Associate Professors
Brian Blank
Jack Shapiro
John Shareshian
Cleon R. Yohe

Associate Professor Emeritus
Henry M. Schaerf

Assistant Professors
Jimin Ding
Nan Lin
Xiang Tang

Mathematics

To be admitted to graduate work in mathematics, a student should have, at the very minimum, the equivalent of two semesters of a rigorous advanced calculus course and two semesters of linear or abstract algebra. More than this is desirable. Because it is difficult to make up coherent programs for students entering in the middle of the year, students will ordinarily be admitted only in the fall. Prospective students should address correspondence to the Department of Mathematics, which will forward appropriate papers to the Graduate School of Arts and Sciences.

The Master of Arts in Mathematics

Thirty units of approved course work at the 400-500 level are required for a master's degree. This must include two sequences from Math 5021-22, Math 5031-32, Math 5041-42 and Math 5051-52. Some beginning students need to take Math 417-418 before attempting Math 5021-5022, 5041-5042, or 5051-5052. In addition to the course requirements, a candidate for the master's degree must pass two of the four Ph.D. written qualifying examinations. A comprehensive A.M. examination based upon advanced calculus, elementary topology, and elementary abstract algebra may be substituted for the two written qualifying examinations. The comprehensive A.M. examination is scheduled as needed.

The Master of Arts in Statistics

Either 24 units of approved course work together with a Master's thesis or else 30 units of approved course work are required for the Master of Arts in Statistics. The student must take, or have taken, the following courses or their equivalents: 4111–4121 (Advanced Calculus), 493–494 (Probability and Mathematical Statistics), 429 (Linear Algebra), and either 439 (Linear Statistical Models) or 475 (Statistical Computation). Other 400-level electives that might be chosen are 408, 420, 434, 449 and 495. Higher electives may be chosen by the student, but only with the permission of the advisor. If the student does not write a Master's thesis, which must be defended in an oral examination, the two comprehensive examinations must be passed. These must either be two mathematics departments Ph.D. qualifying examinations or else both (i) The Society of Actuaries examination covering probability and statistics and (ii) a departmental comprehensive examination covering the material in courses 4111-4121, 429 and 439/475.

The Doctor of Philosophy in Mathematics

The following requirements have been established by the Graduate School and the Department of Mathematics for the Ph.D. degree:

1. Seventy-two units of graduate work, part of which may, with the permission of the department, be transferred from study elsewhere. The following courses or their equivalent must be successfully completed and included among the 72 units: Math 5021-5022 (complex analysis), Math 5031-5032 (abstract algebra), Math 5041-5042 (manifold theory), and Math 5051-5052 (measure theory and functional analysis).
With the permission of the graduate director, a student may substitute Math 5061-5062 (theory of statistics) for either complex analysis or manifold theory.

2. The student must demonstrate competence in English and one other major mathematical language. Details are contained in the department's Graduate Student Handbook.

3. The qualifying examination has two parts: four general written examinations, and oral presentations on two selected topics. The written examinations cover the four required courses listed above. The examination will usually consist of a three hour exam covering the entire sequence. Successful completion of the examination constitutes qualification in the area of question. For the oral component, the student selects a committee of at least two faculty members, in consultation with whom the student selects a major and minor topic. The student demonstrates his or her mastery of the topics in question by presenting an oral exposition satisfactory to the faculty committee.

4. Each student must write an acceptable dissertation.

More detailed descriptions of the requirements, together with a timetable for their expected completion, are contained in the department's Graduate Student Handbook.

Not all courses listed below are offered each year. The department should be consulted for more precise information. Each course has substantial prerequisites, and students should consult with the department before enrolling in any of the courses offered.

Course entitled Topics may vary in content from year to year and may, with the permission of the department be elected more than once for credit. Unless marked otherwise all courses are 3 units each.

For additional information contact Mary Ann Stenner, Administrative Assistant: voice (314) 935-6726, FAX (314) 935-6839, email maryann@math.wustl.edu, or visit the Mathematics Department website at: http://www.math.wustl.edu

Math

407 ... An Intro to Differential Geometry.
408 ... Nonparametric Statistics.
410 ... Intro to Fourier Series and Integrals.
411-412 ... Advanced Calculus I, II.
415 ... Partial Differential Equations.
416 ... Complex Variables.
417-418 ... Intro to Topology & Modern Analysis.
420 ... Experimental Design.
429 ... Linear Algebra.
430 ... Modern Algebra.
434 ... Survival Analysis.
435 .... Algebraic Geometry.
437 ... An Intro to Algebraic Topology.
439 ... Linear Statistical Models.
449 ... Numerical Applied Mathematics.
450 ... Topics in Applied Mathematics.
475 ... Statistical Computation.
481 ... Group Representations.
493 ... Probability.
494 ... Mathematical Statistics.
495 ... Stochastic Processes.
499 ... Study for Honors.
4111 .. Intro to Analysis.
4121 .. Intro to Lebesgue Integration.
500 ... Independent Work. 6 units maximum.
501-502 .. Methods of Theoretical Physics I, II (Identical with Physics 501, 502).
515-516 .. Theory of Partial Differential Equations I, II.
517-518 .. Hilbert Spaces I, II.
519-520 .. Harmonic Analysis I, II.
521-522 .. Topics in Complex Variables I, II.
524-525 .. Measure Theory & Related Topics I, II.
527-528 .. Topics in Functional Analysis I, II.
531-532 .. Theory of Algebraic Numbers I, II.
537-538 .. Topics in Algebra I, II.
543-544 .. Topics in Differential Geometry and Manifold Theory I, II.
545-546 .. Topics in Riemannian Geometry.
551-552 .. Advanced Probability I, II.
553-554 .. Topics in Mathematical Statistics I, II.
563-564 .. Topics in Lie Groups & Lie Algebras I, II
565-566 .. Algebraic Topology I, II.
567-568 .. Topics in the Theory of Functions of Several Complex Variables I, II.
569-570 .. Topics in Homological Algebra I, II.
581 ... Intro to Computational Analysis.
582 ... Advanced Methods of Computational Analysis.
590 ... Research 1 to 6 units a semester.
595-596 .. Seminar 2 to 6 units.
5021-5022 Complex Analysis I, II.
5031-5032 Algebra I, II.
5041-5042 Geometry I, II.
5043 ... Intro to Algebraic Topology.
5051-5052 Measure Theory & Functional Analysis I, II.
5061-5062 Theory of Statistics I, II.
Movement Science Program

The Movement Science Program (MSP) offers Ph.D. training to investigators who seek to answer questions about human movement and its functions and dysfunctions. The program is organized around three core content areas: biocontrol, bioenergetics, and biomechanics. These courses are derived from such basic sciences as anatomy, neurobiology, physiology, and biomechanics, and such clinical sciences as neurology, orthopedics, and cardiology.

Requirements for the MSP doctorate include:
(i) completion of 72 semester units of coursework, subdivided into a core of 36 units, including dissertation research, and 34-38 units of electives within which there is a high degree of flexibility;
(ii) passage of qualifying examinations taken upon completion of core coursework;
(iii) development, implementation, and completion of an appropriate program of original laboratory research;
(iv) successful oral defense of the doctoral dissertation.

A full-time commitment to graduate study is expected of all MSP enrollees. Contingent on availability of funds, assistantships are awarded to qualified students. The funding level and duration of assistantships is dependent upon funds available. Tuition scholarships are generally available through the joint auspices of MSP and the Graduate School. MSP applicants must hold a baccalaureate degree from an accredited college or university. While students from a wide variety of backgrounds are encouraged to apply, special consideration is given to those who hold a professional degree in physical therapy or a degree in a discipline relevant to movement science. In general, applicants are expected to have demonstrated superior achievement in their previous academic work and those with prior professional experience are expected to have exhibited high levels of creativity and capacity for innovation. Prerequisites include the knowledge and skills normally derived from undergraduate or graduate courses in biology, calculus, chemistry, computer science, human anatomy, physics, physiology, and statistics. In exceptional cases, applicants with prerequisite deficiencies may be admitted to MSP with the understanding these deficiencies will be removed by the end of the first year and that remedial coursework addressing deficiencies is not counted toward MSP degree requirements.

Applications for fall semester matriculation are due May 1 and are reviewed on a rolling admission basis. Offers of admission may occur before the May 1 deadline. Applicants must submit completed MSP/Graduate School application forms; a $35 application fee; a typewritten statement of objectives; a sample of professional writing; official transcripts of all post-secondary academic work; three letters of recommendation; and official score reports of Graduate Record Examinations taken within the past seven years.
Assistant Professors
Ruth Clark (Physical Therapy)
Gammon Earhart (Physical Therapy)
Joseph Klaesner (Physical Therapy/Biomedical Engineering)
Catherine Lang (Physical Therapy)
Daniel Moran (Biomedical Engineering)
Susan Racette (Physical Therapy)
Kurt Thoroughman (Biomedical Engineering)
Linda Van Dillen (Physical Therapy)
Dequan Zou (Physical Therapy)

Instructor
W. Todd Cade (Physical Therapy)

Application packets and additional information may be obtained from Movement Science Program, Washington University School of Medicine Campus Box 8502, 4444 Forest Park Blvd., St. Louis, MO 63108, (314) 286-1400.

MSP

5110 ... Instrumentation Theory and Application I 4 units.
5115 ... Instrumentation Theory and Application II 3 units.
5210 ... Teaching Practicum 2 units.
5220 ... Laboratory Practicum I 2 units.
5230 ... Laboratory Practicum II 2 units.
5410 ... Movement Science I – Bioenergetics 3 units.
5510 ... Movement Science II – Biomechanics 3 units.
5530 ... EMG in Kinesiology and Biomechanics 3 units.
5610 ... Movement Science III – Biocontrol Mechanisms 3 units.
5710 ... Independent Study in Movement Science 1-6 units.
5720 ... Research in Movement Science 1-6 units.
5750 ... Readings in Movement Science 1-6 units.
5850 ... Program Seminar 2 units.
5890 ... Dissertation 2 units/semester, maximum 8 units.
Music

The Department of Music offers programs of study leading to the degree Doctor of Philosophy in musicology and music theory. Requirements for all Ph.D. degrees include reading proficiency in two foreign languages, keyboard proficiency, ensemble performance, a written and oral qualifying examination, a dissertation, and oral defense of the dissertation.

The department offers programs of study leading to the Master of Arts degree in musicology, music theory, and musical composition. Requirements for all MA degrees include reading proficiency in one foreign language and keyboard proficiency. Requirements for the MA degrees in musicology and music theory also include ensemble performance, a thesis and an oral defense of the thesis. The MA in composition requires preparation of one or more original compositions in lieu of a thesis, and an oral examination.

The department offers programs of study leading to the Master of Music degree in performance in voice and piano. Requirements for the Master of Music degree include 33 or 37 units of credit (for piano or voice, respectively), reading proficiency in one foreign language, keyboard proficiency, ensemble performance, a graduate recital and an oral examination.

For further details regarding requirements, please request the outline of the appropriate graduate program from the department secretary. Application forms may also be obtained from the department secretary.

Applications for admission to graduate study should be submitted by January 15. The application consists of an application form, application information form, transcripts of undergraduate and graduate study, letters of recommendation, a departmental entrance/placement examination in music history and theory (for Master of Music candidates only), samples of original work in the form of papers, compositions, or recordings of performances, and scores from the Graduate Record Examination (the advanced test in music need not be taken). An application fee of $35 is required. Arrangements for taking the departmental entrance/placement examination may be made through the department office: Blewett Hall, Room 101, Campus Box 1032, voice (314) 935-5566, FAX (314) 935-4034. For further information regarding graduate study, please contact the Director of Graduate Studies or the Department Chairperson at the same address and phone number.

ENSEMBLE PERFORMANCE

Instrumental

3371, 3381...Chamber Winds
1 unit each.

4533, 4534...Symphony
Orchestra 1 unit each.

Vocal

Concert Choir
435, 436 2 units each.

4537, 4538...Small Chamber
Ensemble 1 or 2 units each.
Applied Music
All courses and sections may be taken for 1.5 units (half hour lessons) or 3.0 units (hour lessons).

461-462, 541-542 ... Piano
463-464, 543-544 ... Harpsichord
465-466, 545-546 ... Organ
467-468, 547-548 ... Woodwinds
469-470, 549-550 ... Brass
471-472, 551-552 ... Percussion
473-474, 553-554 ... Strings
475-476, 555-556 ... Guitar
477-478, 557-558 ... Voice

Courses
401 ..... Elementary Techniques of Electronic Music 3 units.
402 ..... Advanced Techniques of Electronic Music 3 units.
411 ..... Music of the Medieval Period 3 units.
412 ..... Music of the Renaissance 3 units.
413 ..... Music of the Baroque 3 units.
414 ..... Music of the Classic Period 3 units.
415 ..... Music of the Romantic Period 3 units.
416 ..... Music of the Twentieth Century 3 units.
419, 420 ..... Literature of Specific Performing Media 3 units each.
4221 ..... Introduction to the Analysis of 20th Century Music 3 units.
423, 424 ..... Analysis I and II 3 units each.
425, 426 ..... Counterpoint I and II 3 units each.
427, 428 ..... Selected Areas for Special Study 3 units each.
429, 430 ..... Composition II 1 to 3 units each.
437, 438 ..... Piano Pedagogy I and II 3 units each.
4371 ..... Opera Production 3 units.
4372 ..... Voice Pedagogy 3 units.
4375 ..... Vocal Literature 3 units.
4376 ..... Opera Literature 3 units.
4381 ..... Literature of the Piano 3 units.
439, 440 ..... Diction I and II 3 units each.
4539, 4540 ..... Advanced Conducting I and II 2 units each.
501, 502 ..... Introduction to Musicological Research I and II 3 units each.
503, 504 ..... Notation I and II 3 units each.
5061 ..... Introduction to Schenker's Analytical Method 3 units.
5062 ..... Seminar in Schenker's Analytical Method 3 units.
5072 ..... Intro to the Analysis of Twentieth-Century Music 3 units.
5073 ..... Seminar in Advanced Analysis of Twentieth-Century Music 3 units.
508 ..... Introduction to Contemporary Music Theory 3 units.
519 ..... Seminar in Musicology/ Ethnomusicology 3 units.
520 ..... Seminar in Music Theory 3 units.
529 ..... Composition, Advanced Credit variable, max 3 units
5651 ..... Seminar on Undergraduate Teaching 1 unit.
New Institutional Social Sciences

New Institutional Social Sciences is an interdisciplinary approach to studying societies, focusing on the interplay between economic, legal, political, and cultural formal and informal institutions that shape human interactions in society. The Graduate Certificate Program in New Institutional Social Sciences provides a curriculum that crosses many different disciplines as well as political, social, economic and cognitive boundaries.

The Certificate Program admits five currently enrolled Ph.D. students every year, preferably with one from each of the Ph.D. programs in Anthropology, Economics, History, Philosophy, Political Science, Social Work, and Business. Students should have successfully completed two years of their Ph.D. training to participate in the program. They will continue training in their respective departments, but spend summers with the Certificate Program. In addition to their coursework, they will work on individual projects or field research during their summers in the program and present their findings before a faculty steering committee, internationally acclaimed professional conferences, and research forums.

Students may apply to the Certificate Program with the approval of their home department graduate advisor. Applicants must apply GSAS certificate application, grade transcripts, two letters of recommendation, and a project plan.

For more information on the Graduate Certificate Program, call (314) 935-5068, FAX (314) 935-5688, or visit the Center for New Institutional Social Sciences website at http://cniss.wustl.edu/certificateprogram.html.

Courses

The graduate certificate consists of six courses (18 units of credit in graduate coursework, of which at least three courses, or nine units, have to be in addition to the unit requirement for Ph.D. degree). You are required to take four of the six courses listed below as well as the Certificate Program Research Seminar:

New Institutional Social Sciences I:
The M.A. Program
Program Coordinator
Claudia Daugherty

Participating Faculty
Professors and Lecturers
Fred Bleeke
Glenn Detrick
Louis Forbringer
Gretta Forrester
Christy Gray
Ron Gribbins
Ann Haubrich
Renee Johnson
Rose Jonas
Marlene Levine
Andrea Maddox-Dallas
Kevin Mills
Jill Nowak
Phillury Platte
Jerry Pratter
Charles Robin
Amy Rome
Diane Ryberg
Faith Sandler

Nonprofit Management

The Master of Arts degree in Nonprofit Management is designed for working professionals currently employed in the nonprofit sector and also those who want to enter the field. The program is administered jointly by the Graduate School of Arts and Sciences and University College. The NPM program provides a range of courses addressing the major responsibilities and challenges of nonprofit and human resources management, preparing students to work effectively in the field and to enhance the management skills of those seeking a career in related fields. Coursework, taught by faculty in related academic disciplines and specialists from the community, is offered on a part-time basis during the evening.

Admission to the graduate program in Nonprofit Management is open to qualified applicants with a baccalaureate degree or the equivalent from an accredited institution of higher learning. Applicants must submit completed application materials for University College graduate programs and a $35 non-refundable application fee. Qualified applicants are admitted initially to University College; admission to the Graduate School as a M.A. degree candidate requires satisfactory completion of two NPM courses.

The requirements for the degree are the completion of 36 units of graduate-level coursework including the following (which total 22 units):

Foundation Courses:
- 21st Century Perspectives on Organization and Human Resources (HRM 506)
- Organizational Behavior and Administration (HRM 520)
- Managerial Economics (HRM 540)
- Research Methods in Human Resources Management (HRM 510)
- Leadership & Management in Nonprofit Organizations (NPM 410)
- Resource Development For Nonprofit Organizations (NPM 415)
- History & Development of the Nonprofit Sector (NPM 421)
- Financial Management (NPM 425)

Elective Courses: A further 11 units are nonprofit related electives of the student’s choice.

Capstone Course: This is a project-oriented course (for 3 units) that integrates previous course work through an applied project (HRM 514).

Please contact University College, (314) 935-6700, for detailed information about program requirements, courses, and admission procedures or visit our website at www.ucollege.wustl.edu.

Selected Courses

412 ... Social Entrepreneurship
426 ... Ethics and Accountability in Nonprofit Organizations
430 ... Program Evaluation for Nonprofit Organizations
435 ... Marketing and Institutional Advancement

440 ... Planning and Decision-Making in Nonprofit Organizations
445 ... Volunteer Resource Management for Today
454 ... Seminar in Arts Management
470 ... Grantwriting
570 ... Legal Issues Impacting Nonprofit Organizations
Philosophy

The Department of Philosophy offers both the A.M. and Ph.D. degrees. The research and interests of departmental faculty are focused around three major themes: naturalism and normativity, the social individual, and the embodied mind (for details, see the department description at www.artsci.wustl.edu/~philos/). The department has special strengths in the following areas of contemporary philosophy: value theory, social and political philosophy, feminist philosophy, philosophy of law, philosophy of science (including social science), philosophy of language, and philosophy of mind. All students are expected to acquire a strong background in the history of philosophy; within the history of philosophy, the department has strengths in ancient philosophy, modern philosophy, Kant and 19th century philosophy, and pragmatism.

Washington University and the Department of Philosophy are strongly supportive of interdisciplinary graduate work. Students will find especially good opportunities for including graduate work in archaeology, biology, classics, Germanic and Romance literature, neuroscience, political science, and psychology in their graduate curriculum. Students with an interest in feminist philosophy or gender issues are strongly urged to pursue a Certificate in Women’s Studies.

Degree Requirements

To receive a Ph.D. in philosophy a student, in addition to fulfilling the requirements of the Graduate School, must (1) fulfill a course distribution requirement ranging from 24 to 36 hours, depending on the student’s academic background, which includes at least 9 credits in core courses in the history of philosophy, 6 credits in core courses in value theory, and 6 credits in core courses in analytic/contemporary philosophy; (2) complete at least 48 credit hours of enrollments in courses, seminars, tutorials, and independent study; (3) fulfill a language requirement in either German or French; (4) fulfill a requirement in logical technique; (5) exhibit a mastery of philosophical writing skills through the sequence of a proseminar and the preparation of three publication-level qualifying papers; (6) pass a topical exam on his or her proposed dissertation topic before beginning to write it; (7) present and defend a paper in a departmental colloquium; (8) write and orally defend a Ph.D. dissertation.

The A.M. in philosophy may be earned either by completing 30 units of graduate-level work in the department and completing a suitably curtailed version of the pre-doctoral candidacy requirements, or by completing a designated 24 units of work and then writing and successfully defending an acceptable Masters thesis.

The general description above is in effect at the time of publication of this Bulletin. Further elaboration on the above requirements as well as any subsequent changes made in the program will be reflected in the Guide to Graduate Study: Department of Philosophy, which is available at www.artsci.wustl.edu/~philos/.

Admission to the Graduate Program

Undergraduate preparation in philosophy is desired, although applicants are not required to have majored in philosophy. Students with backgrounds in any discipline that provides a strong foundation in any of the areas in philosophy on which the department lays special
emphasis are encouraged to apply. The Graduate Record Examination is strongly recommended, although the advanced portion of this examination need not be taken.

For further information, contact Eric Brown, Graduate Director: voice (314) 935-4257, FAX (314) 935-7349, email eabrown@artscl.wustl.edu.

Phil

401 ..... Set Theory 3 units.
403 ..... Mathematical Logic I 3 units.
404 ..... Mathematical Logic II 3 units.
405 ..... Philosophical Logic 3 units.
4065 ... Advanced Philosophy of Language 3 units.
410 ..... Theories of Perception 3 units.
4141 ... Advanced Epistemology 3 units.
4142 ... Advanced Metaphysics 3 units.
418 ..... Current Controversies in Cognitive Science 3 units.
419 ..... Philosophy of Psychology 3 units.
4210 ... Advanced Philosophy of Science 3 units.
4211 ... Philosophy of Social Science 3 units. (Identical with Legal Studies 421, 4211, and Social Thought 4211)
4212 ... Philosophy of Neuroscience 3 units.
426 ..... Theories of Concepts 3 units.
4310 ... 20th Century Metaethics 3 units.
4315 ... Normative Ethical Theory 3 units.
4320 ... British Moralists 3 units.
438 ..... Aesthetics 3 units.
4400 ..... Advanced Social and Political Philosophy 3 units.

451 ..... Plato 3 units. (Identical with Classics 451 and Religious Studies 455)
452 ..... Aristotle 3 units. (Identical with Classics 452 and Religious Studies 456)
4530 ... Hellenistic Philosophy 3 units.
4550 ... Continental Rationalism 3 units.
4560 ... British Empiricism 3 units.
4570 ... Kant's Critique of Pure Reason 3 units.
4575 ... Kant and Kantian Practical Philosophy 3 units.
4602 ... Hegel & Hegelianism 3 units. (Identical with Religious Studies 4703)
464 ..... Advanced Continental Philosophy 3 units.
499 ..... Study for Honors 3 units.
500 ..... Independent Work Maximum credit 6 units.
502 ..... Proseminar in Philosophy 3 units.
503 ..... Tutorial in Philosophy 3 units.
504 ..... Tutorial in Philosophy 3 units.
506 ..... Topics in Philosophy of Language Maximum credit 9 units.
507 ..... Topics in Metaphysics and Epistemology Maximum credit 9 units.
508 ..... Topics in Analytic Philosophy Maximum credit 9 units.
515 ..... Topics in Philosophy of Mind Maximum credit 9 units.

519 ..... Topics in Philosophy of Psychology Maximum credit 9 units.

520 ..... Topics in Philosophy of Science Maximum credit 9 units.

522 ..... Topics in Philosophy of Neuroscience Maximum credit 9 units.

524 ..... Topics in Philosophy of Artificial Intelligence Maximum credit 9 units.

535 ..... Topics in Ethical Theory Maximum credit 9 units.

538 ..... Topics in Aesthetics Maximum credit 9 units.

540 ..... Topics in Social and Political Philosophy Maximum credit 9 units.

546 ..... Topics in Philosophy of Law Maximum credit 9 units.

550 ..... Topics in History of Philosophy Maximum credit 9 units.

553 ..... Topics in Ancient Philosophy Maximum credit 9 units.

555 ..... Topics in Modern Philosophy Maximum credit 9 units.

565 ..... Topics in Continental Philosophy Maximum credit 9 units.

582 ..... Topics in Feminist Philosophy Maximum credit 9 units.

590 ..... Research (master's level) Credit to be arranged.

591 ..... Research (doctoral level) Credit to be arranged.
Philosophy-Neuroscience-Psychology

The Ph.D. in Philosophy-Neuroscience-Psychology (PNP) offers a doctorate in philosophy with a special emphasis on neuroscience, psychology, and other cognitive sciences. Students can take advantage of state-of-the-art research in such fields as brain mapping and neuroimaging, attention and memory, and neural network modeling. The objective is to enable students to incorporate empirical results and theories from these fields into their dissertations and subsequent professional work in philosophy. (For details on the opportunities the program provides, see www.artsci.wustl.edu/~philos/pnp/.)

Degree Requirements
To receive a Ph.D. in PNP a student must fulfill all the requirements of a regular philosophy Ph.D. and, in addition, complete 16 units of course or laboratory work at the graduate level in neuroscience, psychology, or another approved subject area.

To receive a Ph.D. in philosophy a student must fulfill the requirements of the Graduate School and, in addition, must (1) fulfill a course distribution requirement ranging from 24 to 36 hours, depending on the student’s academic background, which includes at least 9 credits in core courses in the history of philosophy, 6 credits in core courses in value theory, and 6 credits in core courses in analytic/contemporary philosophy; (2) complete at least 48 credit hours of enrollments in courses, seminars, tutorials, and independent study; (3) fulfill a language requirement in either German or French; (4) fulfill a requirement in logical technique; (5) exhibit a mastery of philosophical writing skills through the sequence of a proseminar and the preparation of three publication-level qualifying papers; (6) pass a topical exam on his or her proposed dissertation topic before beginning to write it; (7) present and defend a paper in a departmental colloquium; (8) write and orally defend a Ph.D. dissertation.

The general description above is in effect at the time of publication of this Bulletin. Further elaboration on the above requirements as well as any subsequent changes made in the program will be reflected in the Guide to Graduate Study: Department of Philosophy, which is available at www.artsci.wustl.edu/~philos/.

Admission to the Graduate Program
Undergraduate preparation in philosophy is desired, although applicants are not required to have majored in philosophy. As well, undergraduate preparation in either psychology, neuroscience, or another cognitive science, and demonstrated interest in pursuing research in these empirical domains is desired. The Graduate Record Examination is strongly recommended, although the advanced portion of this examination need not be taken.

For further information, contact the program at: voice (314) 935-4297, FAX (314) 935-7349, email pnp@artsci.wustl.edu.

Assistant Professors
Joe Barcroft (Romance Languages & Lit.)
Cindy Brantmeier (App. Linguistics & Spanish)
Randy L. Buckner (Psychology)

Carl Craver (Philosophy)
Brett Hyde (Philosophy)
Brett Kessler (Psychology)
Kathleen McDermott (Psychology)
Philip Robbins (Philosophy)
Jeffrey M. Zacks (Psychology)
Chair and Wayman Crow
Professor of Physics
John W. Clark

McDonnell Professor of Physics
Clifford M. Will

Albert Gordon Hill Professor of Physics
James G. Miller

Charles M. Hohenberg
Professor of Experimental Physics
Stuart A. Solin

Professors
Carl M. Bender
Claude W. Bernard
Thomas Bernatowicz
James H. Buckley
Anders E. Carlsson
Mark S. Conradi
Ramanath Cowsik
Willem H. Dickhoff
Michael W. Friedlander
Patrick C. Gibbons
Charles M. Hohenberg
Martin H. Israel
Jonathan I. Katz
Kenneth F. Kelton
Richard E. Norberg
Michael C. Ogilvie
James S. Schilling
Wai-Mo Suen

Professors Emeriti
Dan I. Bolef
James H. Burgess
Peter A. Fedders
Kazimierz Luszczynski
Peter R. Phillips
John H. Scandrett
J. Ely Shrauner
Ronald K. Sundfors

Joint Professors
Shankar M. L. Sastry
Lee G. Sobotka

Research Professors
Robert W. Binns
Alex P. Meshik
Ernst Zinner

Associate Professor
Ralph Wessel

Physics

Entering students should normally have completed undergraduate physics courses at the intermediate level of mechanics, electromagnetic theory, quantum physics and statistical mechanics, with mathematics courses to or beyond advanced calculus.

Candidates for the Ph.D. are required to complete 72 units of credits, approved by a departmental advisor, with passing grades and a B average or better. At least 36 of the 72 units must have been earned in classroom or seminar courses at the 400-level or higher, of which at least 18 units must be in 500 level courses. In addition to courses in physics, credit towards the degree may be earned in courses in mathematics, engineering, chemistry and other departments if approved by the departmental advisor. Not more than 36 units may be earned in Physics 595-596, which are concerned with research and supervised teaching of physics.

Candidates for the Ph.D. must satisfy a teaching requirement. Teaching Assistants are expected to enroll in Physics 597-598, Teaching Methods in Physics.

Candidates for the Ph.D. degree are required to demonstrate significant accomplishments in research, resulting in the production of an acceptable dissertation, covering original research, followed by an oral examination in defense of the dissertation.

Advancement to Ph.D. candidacy is based on satisfactory performance on a written qualifying examination, coursework and available information on teaching and research abilities and potential. Each component is an important part of the overall evaluation, and students are evaluated individually. The written qualifying examination is given in sections at the beginning of each spring semester; students must complete the examination within the first two years of full-time graduate study.

Students are normally accepted for graduate work towards the Ph.D., although students are occasionally accepted to work towards the Master of Arts degree. Candidates for the M.A. degree are required to present a minimum of 30 units with passing grades and a B average or better; at least 24 units must be in classroom or seminar courses at the 400-level or above. Not more than 6 units of the 30 may have been earned in Physics 593-598. Either acceptable performance, at the Master's level, on the written qualifying examination for the Ph.D., or preparation of a Master's thesis approved by the departmental advisor is required. In the latter case, the course requirement is reduced from 30 to 24 units. In addition to courses in physics, credit towards the degree may be earned in courses in mathematics, engineering, chemistry and other departments if approved by the departmental advisor.

There is no foreign language requirement for the Ph.D. or A.M. degree in physics.

A comprehensive Graduate Student Handbook (available online, see URL below), which discusses in detail requirements and resources, is given to all physics graduate students.

For information contact the Graduate Secretary: voice (314) 935-6250, FAX (314) 935-6219, or visit the web page http://wuphys.wustl.edu/Academics/Graduate/indexHandbook.html.
Phys
411 ..... Mechanics 3 units.
421-422 ... Electricity and Magnetism 3 units/semester.
427 ..... Introduction to Computational Physics 3 units.
441-442 ... Selected Topics in Physics IV 1 to 3 units/semester.
450 ..... Physics of the Brain 3 units.
451 ..... Advanced Laboratory I 3 units.
452 ..... Advanced Laboratory II 3 units.
455 ..... Physics of Vision 3 units.
463 ..... Statistical Mechanics and Thermodynamics 3 units.
471 ..... Quantum Mechanics I 3 units. (Identical with Electrical Engineering 471)
472 ..... Solid-State Physics 3 units.
473 ..... Quantum Mechanics II 3 units.
474 ..... Nuclear and Particle Physics 3 units.
476 ..... Astrophysics 3 units.
500 ..... Independent Work 6 units maximum, to be arranged.
501-502 ... Methods of Theoretical Physics 3 units/semester. (Identical with Mathematics 501-502)
503 ..... Advanced Mathematical Methods for Physicists and Engineers I 3 units.
504 ..... Advanced Mathematical Methods for Physicists and Engineers II 3 units.
505-506 ... Classical Electrodynamics 3 units/semester.
507 ..... Classical Mechanics 3 units.
523-524 ... Quantum Mechanics 3 units/semester.
529 ..... Statistical Mechanics 3 units.
530 ..... Advanced Topics in Statistical Mechanics 3 units.
534 ..... Magnetic Resonance 3 units.
535 ..... Ultrasonics 3 units.
537 ..... Materials Physics I 3 units.
539 ..... Materials Physics II 3 units.
540 ..... Quantum Theory of Many-Particle Systems 3 units.
542 ..... Nuclear Physics 3 units.
545 ..... Solar System Astrophysics 3 units.
546 ..... Galactic Astrophysics 3 units.
547 ..... Introduction to Elementary-Particle Physics 3 units.
549 ..... Solid-State Physics I 3 units.
550 ..... Solid-State Physics II 3 units.
551 ..... Relativistic Quantum Mechanics 3 units.
552 ..... Relativistic Quantum Field Theory 3 units.
557 ..... Gravitation and Cosmology 3 units.
558 ..... Relativistic Astrophysics 3 units.
563 ..... Topics in Theoretical Biophysics 3 units.
565 ..... Magnetism and Superconductivity 3 units.
570 ..... Planetary Geophysics 3 units. (Identical with Earth and Planetary Sciences 570)
589-590 ... Selected Topics in Physics Credit to be arranged.
593-594 ... Introduction to Methods in Physics 2 units/semester.
595-596 ... Research Credit to be arranged.
597-598 ... Supervised Teaching of Physics 2 units/semester.
Political Economy and Public Policy

The Center in Political Economy offers Ph.D. students in Economics and Political Science the opportunity to pursue a field concentration as well as dissertation research in Political Economy. The Center also offers an interdisciplinary A.M. degree in Political Economy and Public Policy.

Students entering the A.M. program will be expected to have done basic undergraduate course work in political science and/or economics. Preparation in mathematics, history or sociology is also useful.

The core of the program includes a seminar in political economy, a theoretical course in economics (either public finance, macro-economics, or price theory) and a course in quantitative methods from economics, political science or from another social science discipline.

In addition, 15 credits of coursework from three fields of concentration - the formal analysis of institutions, economics, and public policy - are required. The Director and students’ advisors may recommend and/or approve students’ selections. Among the courses offered are The Theory of Property Rights; Game Theory; Theory of Institutions; The Legislative Process; Economics of Environmental Resources; and International Political Economy. Students must also complete an A.M. thesis of approximately 12,000 words in length under the supervision of an advisor or the Director. The 19 fellows of the Center belong to the Departments of Economics and Political Science, and to the Schools of Law and Business. In addition, the Center sponsors a seminar series of visiting lecturers throughout the academic year. Students are expected to participate in workshops relevant to their field of concentration and are invited to participate in the entire series.

For more detailed information, please contact the Center in Political Economy at (314) 935-5686.

Assistant Professors
Ethan Bueno De Mesquita
(Political Science)
Nathan Jensen
(Political Science)
Mona L. Krook
(Political Science)
Stephanie Lau
(Economics)
Francis Lovett
(Political Science)
Andrew Mertha
(Political Science)
Andrew Rehfeld
(Political Science)
Guillermo Rosas
(Political Science)
Political Science

The Department of Political Science offers A.M. and Ph.D. degrees. The department has a small, high-quality doctorate program designed primarily to train research scholars and teachers. Materials and methods appropriate to that objective, especially analytical skills, are stressed.

There are no absolute prerequisites for admission to the graduate program. Normally students will be expected to have done basic undergraduate course work in political science and to have earned an overall undergraduate grade average of B or better. Preparation in economics, sociology, history, mathematics, and statistics is also useful. Students applying to do graduate work must take the verbal, analytic and quantitative parts of the Graduate Record Examination. In addition to well prepared students with bachelor’s degrees, students who have completed A.M. degrees or some graduate work elsewhere are invited to apply to the doctoral program.

Requirements for the A.M. Degree

In general, the Department admits students who seek the Ph.D., and discourages applicants who seek a terminal A.M. degree. Students may obtain the A.M. degree, however, en route to the doctorate. In addition, some students who depart the doctoral program before completing the Ph.D. may be awarded the A.M. degree if they have fulfilled the necessary course requirements. In order to qualify for the Master’s degree, a student must meet the following requirements: 42 credit hours of graduate-level political science classes with a grade of B or better (plus others approved by the Director of Graduate Studies on a case-by-case basis).

Ph.D. Curriculum and Requirements

Graduate School requirements for the doctorate include at least 72 units of graduate-level course work and a dissertation. The department offers graduate-level courses designed to prepare students in six basic fields of political science: (1) American politics, (2) comparative politics, (3) formal theory and methodology, (4) public policy/political economy, (5) political and social theory, and (6) international politics. Students are expected to take a comprehensive examination in a major field at the end of their fourth semester and an exam (with relevant paper) in a minor field before the end of their sixth semester. Students must work as teaching assistants for at least two semesters in order to earn the Ph.D. Each student must also demonstrate competence in quantitative analysis. Additional information on the graduate programs may be obtained by writing to us or visiting the department website at http://polisci.wustl.edu/.

The graduate course listings are flexible and can accommodate readily the changing needs and interests of faculty and students. Topics and courses that are offered more or less regularly are listed below. For other courses, as well as for graduate seminars, particular content is announced in advance of registration, both in the general Course Listings and on the departmental bulletin board. These listings also specify the prerequisites for each course.

For further information contact the department at (314) 935-5852.
Pol Sci

4012 ... Current Issues in Social Theory 3 units.

4024 ... The Meaning of National Security in the 21st Century 3 units.

4052 ... Max Weber's "Sociology of Law" 3 units.

4064 ... Current Issues in Contemporary Chinese Politics 3 units.

4231 ... Contemporary Issues in Latin America 3 units.

4263 ... Systems of Inequality 3 units.

4281 ... Comparative Political Parties 3 units.

4461 ... The Rule of Law 3 units.

4503 ... Topics in Political Thought: Order, Diversity and the Rule of the Law 3 units.

4504 ... Contemporary Democratic Theory 3 units.

4513 ... Topics in Politics: Criminal Law and Criminal Justice: Homicide 3 units.

452 ... Topics in American Politics: Politics, Policy and the Media 3 units.

4532 ... Seminar in Constitutional Politics 3 units.

4551 ... Seminar in Political Economy 3 units.

4621 ... Politics and the Theory of Games 3 units.

464 ... Topics in American Politics: The United States in Vietnam: Origins, Developments, and Consequences 3 units.
575 ..... Politics of
    International
    Finance I 3 units.

5751 ... Politics of
    International
    Finance II 3 units.

578 ..... Seminar in
    International
    Political Economy I 3
    units.

5781 ... Seminar in
    International
    Political Economy II
    3 units.

581 ..... Quantitative Political
    Methodology I 3
    units.

582 ..... Quantitative Political
    Methodology II 3
    units.
Psychology

Graduate study in the Department of Psychology may be undertaken in the following general areas: Behavior, Brain, and Cognition; Clinical Psychology; Aging and Development; and Social and Personality.

The traditions of Washington University and the Department of Psychology encourage interdisciplinary graduate study, both between the subfields of psychology and with other disciplines. Opportunities for study and research are available in the Division of Biology and Biomedical Sciences; the programs of Linguistics and of Cognitive, Computational, and Systems Neuroscience; in African American Studies; and in Philosophy-Neuroscience-Psychology, as well as in several departments of the Schools of Medicine and Engineering.

Requirements for the Ph.D. and the A.M. degree, with thesis, are described in the section titled, “Requirements for Advanced Degrees”, in this Bulletin. Two semesters of teaching assistant experience are required for the Ph.D. degree.

Admission to the Graduate Program

The department recommends a liberal undergraduate education with a major in psychology before undertaking graduate study in psychology, though other major fields may be suitable as preparation in specific areas of psychology. There are no minimum undergraduate course requirements on which admission to graduate study in the department is based.

The applicant's qualifications for admission to the graduate program in psychology are evaluated on the basis of the following:
1. A transcript of college work leading to the bachelor's degree.
2. A completed Washington University Application for Admission to Graduate Study; a $35 application fee.
3. The results of the Graduate Record Examination.
4. Three letters of recommendation from persons acquainted with the abilities and academic work of the applicant.
5. An interview with an applicant is desirable. Qualified applicants may be asked to come for an interview, but an interview is not mandatory for admission.

Upon entering graduate study in psychology, students are encouraged to plan programs to proceed to the doctorate, although they may wish to earn the master's degree as the first step. The master's degree is recommended but not required as an intermediary degree between the bachelor's and doctoral degrees.

For further information contact the department at (314) 935-6520.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>4001</td>
<td>Introduction to Neuropsychology</td>
<td>3 units</td>
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<tr>
<td>404</td>
<td>Neuroscience</td>
<td>3 units</td>
</tr>
<tr>
<td>4041</td>
<td>Historical Roots of Neuropsychology (Identical with Biology 4041)</td>
<td>3 units</td>
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<tr>
<td>4042</td>
<td>Behavioral Neurosciences</td>
<td>3 units</td>
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<tr>
<td>4043</td>
<td>Behavioral Neurosciences II</td>
<td>3 units</td>
</tr>
<tr>
<td>4044</td>
<td>Topics in Cognitive Neuropsychology</td>
<td>3 units</td>
</tr>
<tr>
<td>4046</td>
<td>Developmental Neuropsychology</td>
<td>3 units</td>
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<tr>
<td>4047</td>
<td>History of Neuroscience</td>
<td>3 units</td>
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<tr>
<td>409</td>
<td>Hypnosis</td>
<td>3 units</td>
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<tr>
<td>4101</td>
<td>Psychological Anthropology (Identical with Anthropology 411)</td>
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<tr>
<td>4109</td>
<td>History and Identity (Identical with L12 4109)</td>
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<td>413</td>
<td>Contemporary Topics in Social Psychology</td>
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<td>4133</td>
<td>Differential Life Styles: Concepts and Studies in Deviant Behavior (Identical with Social Thought and Analysis 423)</td>
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<tr>
<td>4182</td>
<td>Perception, Thought, and Action</td>
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<tr>
<td>4221</td>
<td>Human Motives and Behavior (Identical with Education 522)</td>
<td>3 units</td>
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<tr>
<td>4222</td>
<td>The Experimental Analysis of Behavior</td>
<td>3 units</td>
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<tr>
<td>426</td>
<td>The Psychology of Aging</td>
<td>3 units</td>
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<tr>
<td>427</td>
<td>Social Gerontology</td>
<td>3 units</td>
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<tr>
<td>4301</td>
<td>Contemporary Topics in Cognitive Development (Identical with Linguistics 408)</td>
<td>3 units</td>
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<td>4308</td>
<td>Topics in the Philosophy of Cognitive Science (Identical with Speech and Hearing 4414)</td>
<td>3 units</td>
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<tr>
<td>431</td>
<td>Hearing (Identical with Speech and Hearing 4414)</td>
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<tr>
<td>433</td>
<td>Psychology of Speech and Language (Identical with Linguistics 408)</td>
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<tr>
<td>4351</td>
<td>Reading and Reading Development</td>
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<tr>
<td>4361</td>
<td>Psychological Perspectives on the Self (Identical with Linguistics 408)</td>
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<td>Acoustical Phonetics and Speech Perception (Identical with Linguistics 433)</td>
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<td>4381</td>
<td>Introduction to Speech and Music</td>
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<td>439</td>
<td>Vision (Identical with Biology 4591)</td>
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<tr>
<td>4408</td>
<td>Trauma and Memory</td>
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<tr>
<td>4411</td>
<td>Topics in Cognitive Neuroscience</td>
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<tr>
<td>4418</td>
<td>Computational Modeling in Cognitive Neuroscience</td>
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<tr>
<td>4422</td>
<td>Learning and Thinking in School Settings (Identical with Education 4422)</td>
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<tr>
<td>4425</td>
<td>Psychoneuroimmunology</td>
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<tr>
<td>444</td>
<td>Seminar on Human Psychophysiology</td>
<td>3 units</td>
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<tr>
<td>4483</td>
<td>Language, Mind, and Action in Socioculture (Identical with Education 4483)</td>
<td>3 units</td>
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<tr>
<td>450</td>
<td>Introduction to Clinical Psychology</td>
<td>3 units</td>
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<tr>
<td>450W</td>
<td>Theories of Psychotherapy</td>
<td>3 units</td>
</tr>
<tr>
<td>4551</td>
<td>Behavior Modification and Self-Management (Identical with AFAS 461B)</td>
<td>3 units</td>
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<tr>
<td>4557</td>
<td>Biopsychosocial Aspects of Eating Disorders and Obesity</td>
<td>3 units</td>
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<tr>
<td>4625</td>
<td>Autobiographical Memory</td>
<td>3 units</td>
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<tr>
<td>4651</td>
<td>History and Modern Systems of Psychology</td>
<td>3 units</td>
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<tr>
<td>4685</td>
<td>Poverty, Race, and Health</td>
<td>3 units</td>
</tr>
<tr>
<td>4765</td>
<td>Biological Basis of the Major Mental Disorders</td>
<td>3 units</td>
</tr>
<tr>
<td>478</td>
<td>Psychopathology of Childhood</td>
<td>3 units</td>
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<tr>
<td>479</td>
<td>Psychology and Psychopathology of the Family</td>
<td>3 units</td>
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<tr>
<td>484B</td>
<td>The Construction and Experience of Black Adolescence (Identical with AFAS 461B)</td>
<td>3 units</td>
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<tr>
<td>5001</td>
<td>Decision Making</td>
<td>3 units</td>
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<tr>
<td>5011</td>
<td>Research Designs and Methods</td>
<td>3 units</td>
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<tr>
<td>503</td>
<td>Seminar in Experimental Social Psychology</td>
<td>3 units</td>
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<tr>
<td>504</td>
<td>Traditional and Non-Traditional Research Strategies in Psychology</td>
<td>3 units</td>
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<tr>
<td>5056</td>
<td>Meta-Analysis: The Systematic Use of Past Research</td>
<td>3 units</td>
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<tr>
<td>5066</td>
<td>Quantitative Methods I</td>
<td>3 units</td>
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<tr>
<td>5067</td>
<td>Quantitative Methods II</td>
<td>3 units</td>
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<tr>
<td>507</td>
<td>Educ. Stats: Analysis of Variance</td>
<td>3 units</td>
</tr>
<tr>
<td>5071</td>
<td>Anatomy of Variance and Research Design</td>
<td>3 units</td>
</tr>
<tr>
<td>508</td>
<td>Memory and Cognition</td>
<td>3 units</td>
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</tbody>
</table>
5081 ... Advanced Seminar in Cognitive Psychology 3 units.
5082 ... Working Memory and Executive Control 3 units.
5083 ... Cognitive Rehabilitation of Memory 3 units.
5084 ... Cognitive Illusions 3 units.
5085 ... Human Memory 3 units.
5086 ... Retrieval Processes in Human Memory 3 units.
5087 ... Cognitive Psychology Proseminar 3 units.
509 ..... Assessment of Ego Development 3 units. *(Identical with Education 509)*
5101 ... Structured Cognitive Assessment 3 units.
5112 ... Psychological Assessment I 3 units.
5113 ... Psychological Assessment II 3 units.
5121 ... Assessment Practicum 3 units.
516 ..... Applied Multivariate Statistics 3 units.
5251 ... Proseminar in Health Psychology 3 units.
5254 ... Research Practicum in Health Psychology 3 units.
532 ..... Developmental Psychology 3 units.
535 ..... Personality Theory 3 units.
537 ..... Advanced Psycho-pathology 3 units.
540 ..... Advanced Seminar in Clinical Psychology 3 units.
5461 ... Interventions I 3 units.
5463 ... Interventions II: Aging 3 units.
5465 ... Interventions II: Neuropsychology 3 units.
5467 ... Interventions II: Health Psychology 3 units.
5505 ... Seeing 3 units.
5520 ... Introduction to Neuropsychology 3 units.
5523 ... Neuropsychological Syndromes 3 units.
5524 ... Life Span Neuropsychology 3 units.
5535 ... Events, Time, Plans, and Goals 3 units.
555 ..... Seminar in Hearing 3 units. *(Identical with Speech and Hearing 511)*
556 ..... Topics in Cognitive Development 3 units.
561 ..... Readings in Psychology Credit to be arranged.
562 ..... Readings in Psychology Credit to be arranged.
563 ..... Practicum in Psychotherapy I 3 units.
564 ..... Practicum in Psychotherapy II 3 units.
565 ..... Practicum in Teaching of Psychology Credit to be arranged.
566 ..... Advanced Analysis of Behavior 3 units.
581 ..... Psychological Problems of Aging I 3 units.
582 ..... Psychological Problems of Aging II 3 units.
585 ..... Neurobiology in Evolution, Growth, Development and Aging I 3 units.
5861 ... Neurobiology in Evolution, Growth, Development and Aging II 3 units.
588 ..... Clinical Psychology of Aging II 3 units.
591 ..... Research in Psychology Credit to be arranged.
592 ..... Research in Psychology Credit to be arranged.
592A ... Theories of Social Psychology 3 units.
593 ..... Contemporary Issues in Social Psychology 3 units.
5931 ... Social Motives and Interpersonal Relations 3 units.
5991 ... Social Cognition 3 units.
5995 ... Automatic and Controlled Processes 3 units.
602 ..... Seminar in Individual Motivation in a Social Context 3 units. *(Identical with Education 602)*
The Department offers graduate programs in both French and Spanish toward the degrees of Master of Arts and Doctor of Philosophy. Curricular changes in the past several years have resulted in two courses required by the Department of all A.M. and Ph.D. students: (1) a seminar on literary theory, methodology and bibliography taught in both the French and Spanish sections and (2) a Teaching Methods Seminar offered during the fall semester. In addition, we strongly recommend coursework in secondary language acquisition and linguistics. Graduate seminars are offered every semester to provide intensive training in the analysis and study of French and Spanish literature.

Master of Arts Degree in French or Spanish
This program requires 30 units of course work distributed in accordance with the student’s individual program or objective. A written and an oral examination are required of all candidates in French. There is no oral examination in Spanish. In French the examination is administered in the third semester of study. The examination in Spanish is scheduled for mid-August, after two full semesters of study. For specifics, see departmental website (www.artsci.wustl.edu/~rll/rll.html).

Doctor of Philosophy Degree in French Language and Literature or Hispanic Languages and Literatures
This program requires 30 units of course work beyond the A.M. level, and 12 units of dissertation credit. The doctorate aims to prepare candidates for careers as university or college professors and researchers. Each graduate student will teach one section of lower-division French or Spanish for at least two semesters under the supervision of a staff member. The department maintains close interrelationships among graduate teaching faculty, apprentice teaching assistants, and undergraduate students.

Ph.D. in French
The written examination in French consists of three six-hour periods, usually taken within one week. Following the written examination, the candidate must take an oral examination lasting a maximum of two hours. Part One of the written examination will include medieval literature and Renaissance literature; Part Two, the seventeenth and eighteenth centuries; Part Three, the nineteenth and twentieth centuries.

Ph.D. in Spanish
The written examination in Hispanic Languages and Literatures will be taken in three fields of concentration, chosen by the student:

1. A Major Field
2. A Supporting Field
3. Two Minor Fields
Please refer to the departmental website for updates (www.artsci.wustl.edu/~rll/rll.html) for more detailed information. The writing of students who enter the Ph.D. program with an A.M. from another institution will be evaluated during their first semester to determine strengths and areas in which further work may be needed.

**Doctor of Philosophy Degree in French/Spanish and Comparative Literature**

The combined Ph.D. program in Romance Languages and Comparative Literature is operated in conjunction with the Committee on Comparative Literature. It calls for 48 units of course work in French or Spanish, 12 units in Comparative Literature, and 12 units of literature courses in one or more languages other than the major literature. Graduate students in this program will teach 6 units or the equivalent in Comparative Literature and 6 units in Romance Languages. There is one final comprehensive examination in principle, but with modifications to test the student’s expertise in Comparative Literature.

**Graduate Certificate in Language Instruction**

In order to provide our graduate students with additional qualifications and formal training that will make them strongly prepared for a range of demanding academic positions in various languages and literatures, the Department of Romance Languages and Literatures offers the Graduate Certificate in Language Instruction for students enrolled in doctoral degree programs in languages and literatures.

The goal of the five-course sequence is to provide certificate students with a solid base in the theoretical and instructional implications of research on language acquisition across different linguistic subsystems. This formation will also prepare students to be involved in language program design and curricular development.

**Language Requirement**

Students in the doctoral program should prepare themselves as early as possible for work in other languages and literatures. The formal language requirement can be met either by demonstrating a reading knowledge of two languages by examination, by completion of a two-semester translation course for each language, or by passing, at the graduate level, two courses in the literature of a single language with a grade of B or better. The Department encourages students to elect the single-language option and to regard competence in foreign languages and literatures as an integral part of their study and research and not merely a formal requirement. Students should discuss this aspect of their graduate training with their graduate advisor upon admission into the program.

**Dissertation Requirement**

During the semester prior to the semester in which the student takes the Ph.D. exam, he/she will be asked to select a dissertation topic and, after consultation with the Director of Graduate Studies, to form a dissertation committee composed of a director and two readers.

The dissertation topic, to be worked out with the director and the committee members, requires approval of the graduate faculty at the time of the oral portion of the Ph.D. exam. The oral exam incorporates a discussion of the dissertation proposal and an analysis of the relevant bibliographical material. Following the completion of the dissertation and once the thesis is approved within the Department, the Dean of
the Graduate School of Arts and Sciences will appoint a
defense committee of at least six professors, three of whom
will be the members of the primary dissertation committee. The
doctoral defense normally will not last longer than two hours.

For further information contact the department: voice (314) 935-
5173, FAX (314) 726-3494. For graduate program updates or changes
since the printing of this volume, consult the departmental website,

FRENCH
411 ..... Advanced Grammar and  
Syntax 3 units. *(Identical with  
Linguistics 417)*
413 ..... French Phonetics 3 units.  
*(Identical with Linguistics 418)*
415 ..... The 19th-Century Novel  
3 units.
4161 ... Les Educations  
sentimentales 3 units.
417 ..... French Poetry of the  
Renaissance 3 units.
4173 ... Renaissance Poetry and  
Visual Arts 3 units.
418 ..... Prose of the French  
Renaissance 3 units.
4181 ... Humanism in Crisis 3 units.
4182 ... Humanism in Early  
Modern France: From Rabelais to  
Montaigne 3 units.
419 ..... Feminist Literary Theory  
3 units. *(Identical with  
Linguistics 77 and Women and  
Gender Studies 419)*
4191 ... From CODE NOIR  
to Condé 3 units.
4192 ... Tragedy and Farce in  
African Francophone  
Literature 3 units.
420 ..... Twentieth-Century  
Literature II 3 units.
4201 ... The Novel in the Feminine  
(Le Roman au féminin)  
3 units.
4202 ... Ingenues and  
Libertines: Writing  
the Feminine in  
XIXth-Century  
French Prose 3 units.
421 ..... The 20th-Century Novel  
3 units.
4211 ... The Novel of the 1930's:  
The Human Condition  
and the Meaning of Life 3  
units.
422 ..... French Theater from 1800  
to 1940 3 units.
4221 ... 19th and 20th-Century  
French Novel 3 units.
423 ..... Contemporary Theater  
3 units.
425 ..... 19th-Century Poetry  
3 units.
426 ..... Avant-Garde Poetry of the  
20th-Century 3 units.
427 ..... Literature of the  
17th-Century I 3 units.
428 ..... Literature of the  
17th-Century II 3 units.
4281 ... Order in the Court:  
Classical Struggles During  
the Reign of Louis XIV  
3 units.
431 ..... Literature of the  
18th-Century I 3 units.
4311 ... Voices of Dissent:  
Enlightenment Principle  
and Social Protest 3 units.
432 ..... Literature of the  
18th-Century II 3 units.
4321 ... Art, Revolution, and  
Society 3 units.
4331 ... Women of Letters 3 units.
4341 ... Enlightenment Energy: Comedy,  
Eroticism, and the Grotesque 3  
units.
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>435</td>
<td>Prose Fiction from La Princesse De Clèves to the Revolution 3 units.</td>
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<tr>
<td>436</td>
<td>Romanticism 3 units.</td>
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<td>437</td>
<td>Towards 1789 3 units.</td>
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<td>438</td>
<td>Rise of Bourgeoisie 3 units.</td>
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<td>439</td>
<td>Commemorating the King 3 units.</td>
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<td>440</td>
<td>Parnassian and Symbolist Literature 3 units.</td>
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<tr>
<td>441</td>
<td>From Symbolism to Surrealism 3 units.</td>
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<tr>
<td>442</td>
<td>Contemporary Francophone Literature 3 units.</td>
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<tr>
<td>445</td>
<td>The Rhetorical Tradition and the Modern Study of Literature 3 units.</td>
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<tr>
<td>446</td>
<td>Contemporary French Literature from 1950 to the Present 3 units.</td>
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<tr>
<td>447</td>
<td>Medieval Literary Arts 3 units.</td>
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<tr>
<td>448</td>
<td>From Arthur to the Grail 3 units.</td>
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<tr>
<td>449</td>
<td>Introduction to Old French Literature 3 units.</td>
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<tr>
<td>450</td>
<td>Women and Medieval French Literary Tradition 3 units. (Identical with Women and Gender Studies 4502)</td>
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<td>451</td>
<td>French Literature of the Middle Ages I 3 units. (Identical with Comparative Literature 481)</td>
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<tr>
<td>452</td>
<td>French Literature of the Middle Ages II 3 units. (Identical with Comparative Literature 482)</td>
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<td>453</td>
<td>History of the French Language 3 units. (Identical with Linguistics 453)</td>
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<td>456</td>
<td>Romance Philology 3 units. (Identical with Spanish 456, Italian 456, Linguistics 455)</td>
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<td>457</td>
<td>Introduction to Medieval Romance Literatures 3 units. (Identical with Spanish 457, Italian 457)</td>
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<td>458</td>
<td>Sacrifice and Service: Masculinity and the Medieval French Literary Tradition 3 units.</td>
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<tr>
<td>459</td>
<td>Rewriting the Colony: North African Francophone Literature 3 units.</td>
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<tr>
<td>460</td>
<td>French Feminisms and their American Reception 3 units.</td>
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<td>461</td>
<td>Studies in Literary Genre 3 units.</td>
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<td>466</td>
<td>Second Language Acquisition 3 units.</td>
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<td>467</td>
<td>Grammar and Vocabulary Acquisition 3 units.</td>
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<td>468</td>
<td>Topics in French Literature 3 units.</td>
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<td>469</td>
<td>Reading and Writing in a Second Language 3 units.</td>
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<td>470</td>
<td>Suffering and Self-Expression in Early Modern French Literature 3 units.</td>
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<td>481</td>
<td>Sartre and Existentialism 3 units.</td>
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<td>482</td>
<td>Avant-Garde, Post-Modern and Modernity 3 units.</td>
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<td>483</td>
<td>Gender and Genre: Writings by French Women of the Renaissance 3 units.</td>
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<td>Contemporary French Literary Criticism 3 units. (Identical with Comparative Literature 490)</td>
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<td>Selected French Writers 3 units.</td>
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<td>Seminar in the Teaching of Romance Languages 3 units. (Identical with Spanish 501)</td>
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<td>5013</td>
<td>Second Language Acquisition and Pedagogy: Integrating Technology into Language Instruction 3 units.</td>
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<td>Introduction to Literary Theory and Criticism 3 units.</td>
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<td>Literary Theory 3 units.</td>
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<td>509</td>
<td>Explication de Textes 3 units.</td>
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<td>Problems in the Literature of the Middle Ages 3 units.</td>
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<td>515</td>
<td>Ronsard 3 units.</td>
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<td>516</td>
<td>Montaigne 3 units.</td>
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<td>517</td>
<td>Rabelais 3 units.</td>
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<td>Racine 3 units.</td>
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<td>519</td>
<td>Classical Identities: The Power of Word and Image 3 units.</td>
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<td>Problems in 16th-Century Literature 3 units.</td>
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<tr>
<td>541</td>
<td>Problems in 17th-Century Literature</td>
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<td>551</td>
<td>Problems in 18th-Century Literature</td>
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<td>Problems in 19th-Century Literature</td>
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<td>562</td>
<td>Visuality in Modern Poetry</td>
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<td>571</td>
<td>Problems in 20th-Century Literature</td>
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<td>Problems in the 20th-Century Novel</td>
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<td>Problems in Medieval Literature</td>
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**ROMANCE LANGUAGES**

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**ITALIAN**

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<td>419</td>
<td>Feminist Literary Theory</td>
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<td>423</td>
<td>Literature of the Italian Enlightenment</td>
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<td>428</td>
<td>The New Sicilian School</td>
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<td>429</td>
<td>La Commedia dell’arte</td>
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<td>432</td>
<td>Women Writers of the 20th Century</td>
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<td>433</td>
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<td>437</td>
<td>Caffe, Cadavers, Comedy, and Castrati: Italy in the Age of the Grand Tour</td>
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<td>442</td>
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<td>(Identical with French and Spanish 456)</td>
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<td>471</td>
<td>Italian Historical Novel</td>
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<td>481</td>
<td>Dante</td>
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<td>483</td>
<td>Boccaccio: Decameron</td>
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<td>Ariosto: Orlando Furioso</td>
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**SPANISH**

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<td>415</td>
<td>Spanish Phonetics</td>
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<td>416</td>
<td>Introduction to Hispanic Linguistics</td>
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<td>417</td>
<td>Phonology and Second Language Acquisition: Spanish Phonetics, Phonology and</td>
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<td>419</td>
<td>Feminist Literary Theory</td>
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<td>(Identical with Linguistics 77 and Women and Gender Studies 419)</td>
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<td>420</td>
<td>Captivity and Its Consequences: Horror, Desire, and Nostalgia in Colonial</td>
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<td>Narratives</td>
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<td>421</td>
<td>Spanish American Literature of the Colonial Period</td>
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<td>423</td>
<td>Trotaconventos, Celestina and Co.: Go-Betweens, Love, Witchcraft, and other</td>
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<td>Spanish-American Theater</td>
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<td>Spanish-American Prose Fiction: Traditional Novel</td>
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<td>Creative Difference: Reclaiming Spanish American “Traditional” Novel</td>
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<td>Spanish American Literature of the Colonial Period</td>
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<td>4291</td>
<td>The Politics and Poetics of Spanish American New Novel</td>
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<td>Spanish-American Essay</td>
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<td>Spanish-American Poetry</td>
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<td>433</td>
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<td>Spanish American Women Writers I</td>
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<td>Special Topics in Spanish Literature and Culture</td>
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<td>Latin American Film: Argentine Cinema and the Dirty War</td>
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<td>Medieval Spanish Literature</td>
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<td>Narratives of Fear: Violence in Latin American Literature</td>
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<td>Gender, Politics, and Writing in Women's Fiction of the Post-Franco Era</td>
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<td>16th- and 17th-Century Drama</td>
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<td>Cervantes</td>
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<td>16th- and 17th-Century Prose</td>
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<td>463</td>
<td>16th- and 17th-Century Poetry</td>
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<td>Self-Representation and Picaresque Fiction in Early Modern Spain</td>
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<td>Second Language Acquisition</td>
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<td>Grammar and Vocabulary Acquisition</td>
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<td>Borges</td>
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<td>Romanticism</td>
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<td>The Other in Contemporary Spanish Fiction</td>
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<td>479</td>
<td>Generation of 1898 (I): Theatre and Poetry</td>
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<td>Generation of 1898 (II): Essay and Novel</td>
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<td>20th-Century Theatre</td>
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<td>The Fantastic: In Theory and Practice</td>
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<td>486</td>
<td>20th-Century Novel</td>
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<td>487</td>
<td>Discourses on Gender in Nineteenth-and Twentieth-Century Spain</td>
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<td>Spanish Women's Fiction on the Edge of the Millennium</td>
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<td>18th- and 19th-Century Literature</td>
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<td>20th-Century Essay</td>
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<td>497</td>
<td>Modern Spanish Short Story</td>
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501 ..... Seminar in the Teaching of Romance Languages
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5013 ... Second Language Acquisition and Pedagogy: Integrating Technology Into Language Instruction
3 units.

503 ..... Introduction to Graduate Study in Spanish
3 units.

507 ..... Body, Gender, and Power in Colonial Latin America
3 units.

511 ..... Studies in the Literature of the Middle Ages
3 units.

512 ..... Studies in the Literature of the 16th- and 17th-Centuries
3 units.

513 ..... Studies in the Literature of the 19th-Century
3 units.

514 ..... Studies in the Literature of 20th-Century
3 units.

515 ..... Studies in the Literature of Spanish America
3 units. (Identical with Latin American 515)

5161 ..... Poetics and Politics of Representation in 19th-Century Spanish Realism
3 units.

519 ..... Urban Myths: Latin American Cities in Literature
3 units. (Identical with Latin American 519)

5191 ..... Urban Spaces, Gendered Places: Women, City and Modernity in Late 19th- and Turn-of-the Century Spain
3 units. (Identical with Women and Gender Studies 5191)

522 ..... Protest and Pleasure: The Politics of Latin American Cinema
3 units.

5221 ..... Globalism and Technology in Recent Latin American Narrative
3 units.

523 ..... All About Spanish Cinema
3 units.

525 ..... The Ethics of the EXEMPLUM
3 units.

527 ..... Whose Latin America(nism)
3 units.

560 ..... Torture, Inquisition, and Literature
3 units.

592 ..... Wor(l)ds in Dispute: Spanish American Testimonio
3 units.

599 ..... Latin American Narrative in the 21st-Century
3 units.
Ph.D. Program Administrative Committee

Chairperson
Wendy Auslander
(Social Work)

Members
Garrett Duncan
(Education)
David Gillespie
(Social Work)
Yunju Nam (Social Work)
Shanta Pandey
(Social Work)
Edward Spitznagel
(Mathematics)
Bradley Stoner
(Anthropology)
Michael Strube
(Psychology)
James Herbert Williams
(Social Work)

Social Work

The objective of the Ph.D. program is to educate for scholarly careers in social welfare. The program stresses intensive study in an individually determined area of concentration. The course of study is interdisciplinary, with required credits taken both in the School of Social Work and in social and behavioral science departments. A minimum of 72 credit hours of graduate study is required for the Ph.D. degree, including teaching and research assistantships. Twenty-one credits of master's level courses may be applied toward Ph.D. requirements. Competence is assessed through qualifying examinations and through the defense of the dissertation. Degree requirements are further detailed in the Policies and Procedures Manual of the Ph.D. Program in Social Work. Applicants should contact Wendy Auslander, Chair, Ph.D. Program in Social Work, Washington University, Campus Box 1196, One Brookings Drive, St. Louis, MO 63130-4899.

Social Work

Required Courses

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<td>Computer Applications for Data Analysis</td>
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<td>S85-5009</td>
<td>Adv. Computer Applications for Data Analysis</td>
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<td>S85-5001</td>
<td>Foundations of Data Analysis</td>
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<td>S90-6550</td>
<td>Introduction to Advanced Research</td>
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<td>S90-6561</td>
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<td>S90-6583</td>
<td>Practicum in Research III</td>
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In addition to these courses, one specialized research course is required, plus 15 units of social science elective credit taken outside the school of Social Work.

Faculty

Professors
Edward F. Lawlor
(Dean)
Wendy Auslander
David Gillespie
Shanti Khinduka
Nancy Morrow-Howell
Martha Ozawa
Enola Proctor
Mark Rank
Michael Sherraden
Arlene Stiffman
Luis Zayas

Associate Professors
John Bricout
Brett Drake
Tonya Edmond
Melissa Jonson-Reid
Curtis McMillen
Shanta Pandey
David Pollio
Nancy Vosler
Gautam Yadama

Assistant Professors
Stephanie Boddie
Peter Hovmand
Carolyn Lesorogol
Amanda Moore McBride
Yunju Nam
Ron Pitter
Michelle Putnam

S90-6591... Practicum in Teaching 1 or more units.
S90-6592... Practicum in Teaching 1 or more units.
S90-6820... The Role and Use of Theory in Applied Social Research 3 units.
S90-6852... Social Measurement and Research 3 units.
S90-6900... Multivariate Statistics 3 units.
S90-6970... Area of Specialization 3 units.
S90-6815... Professional Development 1 unit.
S90-6816... Professional Development 1 unit.
Speech and Hearing Sciences Program

The Speech and Hearing Sciences (SHS) Program offers Ph.D. training to individuals interested in pursuing research and/or academic careers in the fields related to speech and hearing sciences. The program is multidisciplinary in nature, drawing from the disciplines of speech and hearing sciences, psychology, linguistics, education, anatomy and neurobiology, and the allied health sciences. Participating SHS faculty participate through their teaching, advising, and research training efforts within the four primary areas of emphasis: audiology, deaf education, speech and language, and sensory neuroscience.

Established in affiliation with Central Institute for the Deaf (CID) in 1947, today the SHS Program is administered by the Program in Audiology and Communication Sciences (PACS) in the School of Medicine. PACS is a member of a consortium of programs that also includes clinical services and research programs, known as "CID at Washington University School of Medicine." PACS also maintains its close affiliation with the CID Oral School and Outreach Center, the world-renowned school for hearing-impaired children.

Requirements for the SHS Ph.D., which is conferred by the Graduate School of Arts and Sciences, include:

(i) completion of at least 72 semester units of coursework, including all prerequisites, core courses, electives, dissertation research, and teaching requirements;

(ii) passage of qualifying examinations taken upon completion of core coursework;

(iii) successful preparation and oral defense of the doctoral dissertation.

The student handbook provided upon enrollment into the program describes additional details about policies and procedures. Contingent on availability of funds, assistantships are awarded to qualified students. The funding level and duration of assistantships are dependent upon funds available.

SHS applicants must hold a baccalaureate degree or higher from an accredited college or university. While students from a wide variety of backgrounds are encouraged to apply, special consideration is given to those who hold a degree in speech and hearing sciences, or a closely related field. In general, applicants are expected to have demonstrated superior achievement in their previous academic and/or professional work.

Applications for fall semester matriculation are due February 15, while applications for spring semester matriculation are approved only on a case-by-case basis. Applicants must submit a completed application form; a $50 application fee; a statement of purpose; official transcripts of all post-secondary academic work; three letters of recommendation; and official score reports of the Graduate Record Examination. An official score report from the Test of English as a Foreign Language (TOEFL) is also required for international applicants.

An application packet and additional information may be obtained from Speech and Hearing Sciences Program, Washington University School of Medicine, Campus Box 8042, 660 S. Euclid Ave., St. Louis, MO 63110, voice (314) 747-0104, web http://pacs.wustl.edu.
### SPHR

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<td>Behavior Management</td>
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<td>414</td>
<td>Hearing</td>
<td>3</td>
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<td>416</td>
<td>Evaluation Techniques for Hearing and Language Impaired</td>
<td>3</td>
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<td>421</td>
<td>Introduction to Electroacoustics</td>
<td>3</td>
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<td>422</td>
<td>Basic Acoustic Measurements</td>
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568 ....Clinical Electrophysiology Assessment 3 units.

569 ....Hearing Disorders 3 units.

570 ....Independent Study 6 units maximum.

5700 ..Capstone Project 6 units maximum.

571 ....Evaluating and Reporting Research in Speech and Hearing 2 units.

572 ....Evaluating and Reporting Research in Speech and Hearing 2 units.

574 ....Quantitative Methods 2 units.

575 ....Special Topics 2 units maximum.

577 ....Research in Speech and Hearing 12 units maximum.

587 ....Dissertation Research 12 units maximum.

597 ....Supervised Teaching in Speech and Hearing Sciences 6 units maximum.
Women and Gender Studies

Women and Gender Studies offers a series of interdepartmental graduate courses to supplement the programs of students in the A.M./Ph.D. programs throughout the university. This series of courses constitutes a “graduate minor” or certificate in Women and Gender Studies. For those interested in graduate study, the Graduate Certificate in Women and Gender Studies requires the completion of five courses, at least two of which must be drawn from a 400 level or above home-based Women and Gender Studies course.

The additional three courses required may be drawn from a 400 level or above home-based or cross-listed Women and Gender Studies course or from other appropriate gender-based courses. Since a certificate requires three courses beyond those required for a student’s home degree, participation in the certificate normally would require an extra semester of graduate work. An alternate way in which graduate students might be able to draw on this core curriculum to enrich their training and strengthen their credentials may be by pursuing a graduate minor according to the policies of the individual departments. Other students might participate in individual courses without commitment to a concentration.

Graduate students interested in the Women and Gender Studies Graduate Certificate should first apply for admission to the Washington University department in which they wish to obtain an advanced degree. After being admitted, each student should notify the graduate school advisor and the Women and Gender Studies Program director of plans to obtain the Women and Gender Studies Certificate. In addition, students should submit an “Application for Admission to Certificate Program” form to the Graduate School of Arts and Sciences office. Certificate application forms are available in the Graduate School office.

For more information about the Graduate Certificate in Women and Gender Studies call (314) 935-5102 or visit the website at http://asec.artsci.wustl.edu/~women/.

Beata Grant (Chairperson, Asian and Near Eastern Languages and Literatures)  
Fateme Keshavarz (Asian and Near Eastern Languages and Literatures)  
Angela Miller (Art History and Archaeology)  
Akiko Tsuchiya (Romance Languages and Literatures)  
Laura Rosenbury (Law)  

Assistant Professors
Mona Lena Krook (Political Science)  
Erin McGlothlin (Germanic Languages & Literatures)  
Lara Bovilsky (English)  
Leslie Brown (History and African and Afro-American Studies)  
Rebecca Deroo (Art History and Archeology)  
Tonya Edmond (Social Work)  
Shanti Parikh (Anthropology and African and Afro-American Studies)
Adjunct Associate Professor
Linda Lindsey (Social Thought and Analysis)

Lecturers
Barbara Baumgartner (Associate Director, Women and Gender Studies)
Jami Ake (Assistant Dean and Academic Coordinator)
Ruth Berson (Women and Gender Studies)
Margaret Guest (Women and Gender Studies)
Jennifer Stiff (Women and Gender Studies)

Professor Emerita
Joyce Trebilecot (Philosophy and Women and Gender Studies)

Courses
419.....Feminist Literary Theory
3 units.

420.....Contemporary Feminisms
3 units.

475.....Intellectual History of Feminism
3 units.

476.....Feminist Theories and Methods in Social Science
3 units.

500.....Independent Study: Feminist Practices
max 4 units.
The Writing Program

The Writing Program includes an undergraduate creative-writing program and a two-year graduate program leading to the degree of Master of Fine Arts in Writing. M.F.A. candidates complete 42 semester units, a thesis (which is either a novel or a collection of poems, short stories, or non-fiction), and an oral examination dealing principally with the thesis. Students will take 24 units in workshops and 6 units in tutorials of directed writing. The remaining course work will be selected, with the guidance of the program director, from any department in which the student has appropriate preparation and whose graduate offerings can enrich the student’s writing. M.F.A. candidates or recipients may apply for admission into the Ph.D. program. Up to 24 hours of appropriate course work in literary studies in the M.F.A. are transferable to the Ph.D. Up to 6 units of credit for graduate courses taken elsewhere may be transferred toward the M.F.A. upon approval of the faculty and after one year in residence, but all writing workshops must be taken at Washington University.

A non-credit writers’ colloquium meets regularly during the academic year, offering opportunities to talk with visiting writers and other guests. All students in the program attend these meetings. The M.F.A. degree can be completed in two years even by those who choose, and are chosen, to be teaching assistants in their second year. Specific degree requirements are available in writing.

An endowed chair, the Hurst Visiting Professorship, brings to campus annually four or more distinguished writers. In addition to presenting readings and lectures, these visitors are particularly accessible to students in the Writing Program through one-on-one and group meetings. Recent Hurst Professors have included poets Frank Bidart, Louise Gluck, Linda Gregerson, Lyn Hejinian, Heather McHugh, Arthur Sze, and Jay Wright and fiction writers Amy Bloom, Tony Earley, Amy Hempel, Michael Martone, Sigrid Nunez, and Joy Williams.

Each academic year the Writing Program Reading Series also brings four writers to campus for brief visits which include readings and lectures on craft. Recent readers include Donald Antrim, Lucie Brock-Broido, Jorie Graham, Scott Heim, and Bin Ramke.

Applicants for admission should submit, by January 11, samples of their writing: typed manuscripts consisting of eight to twelve poems, two or three short stories (no more than 35 pages), or an equivalent section of a novel or a sample of non-fiction. These should be sent directly to The Writing Program. Application forms, references, transcripts of previous academic work, and the Graduate Record Examination scores should be sent no later than January 11.

Requests for information about the program and any other correspondence should be addressed to The Writing Program, Washington University, Campus Box 1122, One Brookings Drive, St. Louis MO 63130-4899, voice (314) 935-7130.
WRITING

E Comp

413 ..... Topics in Composition: Creative Non-Fiction 3 units.

421 ..... Proseminar in Writing I: Fiction 3 units.

422 ..... Proseminar in Writing II: Poetry 3 units.

423 ..... Proseminar in Writing III: Nonfiction Prose 3 units.

452 ..... Seminar in Playwriting 3 units. (Identical with Drama 452)

500 ..... Independent Study Credit to be arranged.

521 ..... Fiction Workshop 6 units.

522 ..... Poetry Workshop 6 units.

523 ..... Nonfiction Prose Workshop 3 units.

524 ..... Playwriting Workshop 3 units. (Identical with Drama 524)

599 ..... Seminar: The Teaching of Freshman Composition 3 units.
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