

# 2015-16 Bulletin

GRADUATE SCHOOL OF ARTS & SCIENCES



Washington University in St. Louis



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# Catalog 2015-16

## About This Bulletin

The *Bulletin* is the catalog of undergraduate courses and degrees, as well as the catalog of the Graduate School of Arts & Sciences, of Washington University in St. Louis. The catalog includes programs, degree requirements, course descriptions, pertinent university policies and faculty for students earning a degree through one of the four undergraduate schools: College of Arts & Sciences; Olin Business School; Sam Fox School of Design & Visual Arts (College of Architecture, College of Art); and School of Engineering & Applied Science. The catalog of the graduate school includes programs, degree requirements, policies and faculty of the Graduate School of Arts & Sciences.

The degree requirements and policies in the *2015-16 Bulletin* apply to students entering Washington University during the 2015-16 academic year.

The *2015-16 Bulletin* is entirely online but may be downloaded in PDF format for printing. Individual pages may be downloaded in PDF format using the "Download This Page as a PDF" option on each page. To download the full PDF, please choose one of the following:

- *Undergraduate Bulletin* (PDF)
- *Graduate School of Arts & Sciences Bulletin* (PDF)

Every effort is made to ensure that the course information, applicable policies and other materials presented in the *Bulletin* are accurate and correct. Washington University reserves the right to make changes at any time without prior notice. Therefore, the electronic version of the *Bulletin* may change from time to time without notice. The governing document at any given time is the then-current version of the *Bulletin*, as published online, and then-currently applicable policies and information are those contained in that *Bulletin*.

More information about the schools may be found by visiting their websites:

College of Arts & Sciences: <http://college.artsci.wustl.edu>

Olin Business School: <http://olin.wustl.edu>

Sam Fox School of Design & Visual Arts (Colleges of Architecture and Art): <http://samfoxschool.wustl.edu>

Engineering & Applied Science: <http://engineering.wustl.edu>

Graduate School of Arts & Sciences: <http://graduateschool.wustl.edu>

For the most current information about available courses and class scheduling, visit <https://acadinfo.wustl.edu> (WebSTAC). Questions concerning the *Bulletin* may be addressed to [bulletin\\_editor@wustl.edu](mailto:bulletin_editor@wustl.edu).

For catalogs and course information pertaining to other Washington University in St. Louis schools and programs, please visit <http://wustl.edu/academics/bulletins.html>.

## University Addresses

### Office of Undergraduate Admissions

Room 135, S. Brookings Hall  
Washington University in St. Louis  
Campus Box 1089  
One Brookings Drive  
St. Louis, Missouri 63130-4899  
(314) 935-6000  
(800) 638-0700  
Fax: (314) 935-4290  
Website: <http://admissions.wustl.edu>  
Email: [admissions@wustl.edu](mailto:admissions@wustl.edu)

### Graduate School of Arts & Sciences

Suite 204, Cupples II  
Washington University in St. Louis  
Campus Box 1187  
One Brookings Drive  
St. Louis, MO 63130-4899  
(314) 935-6880  
Fax: (314) 935-4887  
Website: <http://graduateschool.wustl.edu>  
Email: [gsas@artsci.wustl.edu](mailto:gsas@artsci.wustl.edu)

### Student Financial Services

Room 75, N. Brookings Hall  
Washington University in St. Louis  
Campus Box 1041  
One Brookings Drive  
St. Louis, Missouri 63130-4899  
(314) 935-5900  
(888) 547-6670  
Fax: (314) 935-4037  
Website: <https://sfs.wustl.edu>  
Email: [financial@wustl.edu](mailto:financial@wustl.edu)

# About WUSTL

## Who We Are Today

Washington University in St. Louis, a medium-sized, independent university, is dedicated to challenging its faculty and students alike to seek new knowledge and greater understanding of an ever-changing, multicultural world. The university is counted among the world's leaders in teaching and research, and draws students from all 50 states, the District of Columbia, Guam, Puerto Rico and the Virgin Islands. Students and faculty come from more than 100 countries around the world.

The university offers more than 90 programs and almost 1,500 courses leading to bachelor's, master's and doctoral degrees in a broad spectrum of traditional and interdisciplinary fields, with additional opportunities for minor concentrations and individualized programs. For more information about the university, please visit: <http://wustl.edu/about/facts>.

## Enrollment by School

<http://wustl.edu/about/facts/#students>

## Committed to Our Students: Mission Statement

Washington University's mission is to discover and disseminate knowledge, and protect the freedom of inquiry through research, teaching and learning. Washington University creates an environment to encourage and support an ethos of wide-ranging exploration. Washington University's faculty and staff strive to enhance the lives and livelihoods of students, the people of the greater St. Louis community, the country and the world.

Our goals are:

- to welcome students, faculty and staff from all backgrounds to create an inclusive community that is welcoming, nurturing and intellectually rigorous;
- to foster excellence in our teaching, research, scholarship and service;
- to prepare students with attitudes, skills and habits of lifelong learning and leadership thereby enabling them to be productive members of a global society; and
- to be an institution that excels by its accomplishments in our home community, St. Louis, as well as in the nation and the world.

To this end we intend:

- to judge ourselves by the most exacting standards;
- to attract people of great ability from diverse backgrounds;
- to encourage faculty and students to be bold, independent and creative thinkers;

- to provide an exemplary, respectful and responsive environment for living, teaching, learning and working for present and future generations; and
- to focus on meaningful measurable results for all of our endeavors.

## Teaching and Learning at Washington University

### A Statement of Best Practices and Expectations

*Original statement endorsed by the Undergraduate Council, November 10, 1999.*

*Amended statement endorsed by the Undergraduate Council, February 2, 2010.*

**All members of the Washington University community share responsibility for creating an atmosphere conducive to learning.** A collaborative learning environment involves the active participation of both instructors and students in the classroom and in activities outside the classroom. This environment requires:

- the best effort on the part of both faculty and students to enhance the learning experience for the benefit of all persons involved;
- the recognition that all present play important roles, all participants in the learning experience deserve respect for what they bring to it, and all should be sensitive to the importance of the others in this process;
- an atmosphere in the classroom of mutual respect for all persons regardless of political, ethnic, religious, gender, sexual orientation and disability considerations.

In response to changing classroom dynamics we the Undergraduate Council make the following recommendations:

**Expectations and responsibilities of the faculty:** The faculty member is involved in several major roles, including those of teacher, scholar-researcher and citizen in the university. For the unimpeded performance of these functions, the faculty member is guaranteed academic freedom. At the same time, the faculty member has clear responsibilities to the students and to the institution, particularly in her or his role as teacher. Instructors should provide the basic outlines for the learning experience and provide guidance as appropriate, generally in the form of a handout or easily accessible electronic document. Such guidance should normally involve:

- the presentation of a syllabus that:
  - (A) clearly identifies the goals of the course and its prerequisites, a schedule of major assignments and examinations, explicit criteria for how student work will be evaluated;

(B) contains a clear articulation of ground rules for classroom interaction and consequences for infringement (How much active participation is expected of the student? Is attendance required? If the course meets over the lunch hour, is it acceptable to eat during class? Is it acceptable to use laptop computers in class?);

- reminding students of the university's standards for academic integrity;
- bringing new perspectives and insights to assigned readings and other text materials;
- regularly meeting class and being punctual in starting and dismissing class;
- prompt and responsible grading, with evaluative comments and opportunities for students to discuss their grades with the faculty member;
- adherence to the announced office hour schedule and offering as many avenues as possible for contact, including by telephone and email;
- the use of appropriate technology as relevant both in and outside the classroom to enhance communication between faculty and students;
- uploading course materials and sending emails in a timely manner;
- the oversight of Teaching Assistants, especially to ensure grading uniformity in large classes;
- facilitation of regular student evaluations of the faculty member's teaching methods and materials, including mid-semester evaluations, as a means of creating an atmosphere of shared responsibility within the classroom;
- when possible, avoiding prohibitive costs when ordering textbooks and other course materials, and making electronic text available;
- adhering to the published final examination schedule to avoid interfering with students' preparation for other classes.

**Expectations and responsibilities of the students.** Students must take responsibility for their own learning. Students also share with the instructor the responsibility for providing an environment conducive to learning. Students should personally:

- be actively engaged with the material and with the process of education;
- build their own knowledge and skills (faculty guide students to materials and methods, but the learning is up to the student);
- attend all classes, both lecture and discussion sessions, and participate in class discussions; leave class only for emergencies; use streaming video recording of lectures only for review, not as a substitute for class;
- be punctual in completing assignments;
- behave in the classroom in a manner that demonstrates respect for students and faculty;

- share responsibility for the flow of information concerning a course by regularly checking the course web page and university email;
- be familiar with and adhere to matters of academic integrity as identified by their school within the university;
- participate in objective and constructive evaluations of the instructor and of the course (this helps to clarify problems and strengths that will help the instructor to improve the course in subsequent semesters);
- conform to the rules for laptop use stated in the syllabus;
- refrain from the use of texting and cell phones.

**Special student concerns.** Students should take the initiative in discussing special arrangements with the instructor in a timely manner when for any reason they miss class. Students also should recognize that the collective needs of the faculty and other students in a course may outweigh individual preferences. Faculty should be sensitive to individual student needs for special arrangements:

- to accommodate disabilities, illnesses, family emergencies, or academic or professional opportunities that interfere with usual class attendance or performance;
- when students miss class because of religious holidays.

**Responsibilities of the university administration.** For its part, the university administration must:

- continue to provide facilities and ensure adequate classroom and laboratory space that is stocked with sufficient appropriate equipment;
- give priority to supporting both faculty and students in teaching and learning;
- be responsive when normal communications between faculty and students break down by providing for a process for discussion and negotiations;
- facilitate communications among various constituents of the university;
- facilitate the flow of visitors to the classroom by notifying faculty of such matters in a timely fashion.

## Where to get help

*For instructors:* The departmental chair, the Teaching Center, colleagues and the relevant dean's office can offer very useful advice on teaching techniques, materials and methods.

*For students:* The instructor, the TAs and Cornerstone: The Center for Advanced Learning can be counted on for guidance on how best to learn; the Writing Center can be a very helpful resource for all sorts of written assignments.

The general process of a student concern is to:

1. raise it first with the faculty member,
2. go to their four-year adviser, and
3. then to the department chair.

Disagreements that have not been resolved by this process can be addressed to the ombudsperson.

## Class Size

More than three-fourths of Washington University's undergraduate classes range from one to 24 students. We believe smaller classes help students learn more through stimulating group discussion. Many classes may be larger at first, but they generally become smaller as students progress in their chosen fields.

Depending on the department, classes may be smaller or larger.

### Average Class Sizes by Level

Class Size	L-100	L-200	L-300	L-400
1-10	96	117	197	149
11-24	193	133	189	117
25-39	22	22	46	52
40-64	32	27	55	31
65-100	7	12	21	6
101-200	19	8	5	1
Over 200	14	3	2	0
TOTAL	383	322	515	356

## University College

University College is the professional and continuing education division of Arts & Sciences and offers a wide range of courses, including online formats, in a variety of academic departments and interdisciplinary and professional areas of study. Part-time and full-time study in undergraduate degree programs, graduate degree programs, and certificate programs is available. University College operates the Summer School for both day and evening students, including a range of credit programs and noncredit institutes for high school and middle school students. University College provides career workshops for adult learners, and it is home to the Lifelong Learning Institute for senior citizens. University College sponsors special lecture series such as the Master of Liberal Arts (MLA) Saturday Lecture Series and Science Saturdays, co-sponsored with the Department of Physics. For more information, visit <http://ucollege.wustl.edu>.

## Trustees & Administration

### Board of Trustees

Please visit the Board of Trustees website at <http://boardoftrustees.wustl.edu>.

### University Administration

In 1871, Washington University co-founder and then-Chancellor William Greenleaf Eliot sought a gift from Hudson E. Bridge, charter member of the university's Board of Directors, to endow

the chancellorship. Soon it was renamed the "Hudson E. Bridge Chancellorship."

Led by the chancellor, the officers of the university administration are detailed on the university website. Please visit <http://wustl.edu/about/leadership>.

## Academic Calendar

### Fall Semester 2015

Date	Day	Description
August 24	Monday	Classes begin
September 7	Monday	Labor Day holiday
October 16	Friday	Fall break
November 25	Wednesday	Thanksgiving break begins
November 29	Sunday	Thanksgiving break ends
December 4	Friday	Last day of classes
December 7	Monday	Reading days begin
December 9	Wednesday	Reading days end
December 10	Thursday	Final examinations begin
December 16	Wednesday	Final examinations end

### Spring Semester 2016

Date	Day	Description
January 18	Monday	Martin Luther King Jr. holiday
January 19	Tuesday	Classes begin
March 13	Sunday	Spring break begins
March 19	Saturday	Spring break ends
April 29	Friday	Last day of classes
May 2	Monday	Reading days begin
May 4	Wednesday	Reading days end
May 5	Thursday	Final examinations begin
May 11	Wednesday	Final examinations end
May 20	Friday	Commencement

### Summer Semester 2016

Date	Day	Description
May 23	Monday	First Summer Session begins
May 30	Monday	Memorial Day holiday
July 4	Monday	Independence Day holiday
August 18	Thursday	Last Summer Session ends

Washington University recognizes the individual student's choice in observing religious holidays that occur during periods when classes are scheduled. Students are encouraged to arrange with

their instructors to make up work missed as a result of religious observance, and instructors are asked to make every reasonable effort to accommodate such requests.

## University Affiliations

Washington University is accredited by the Higher Learning Commission (<http://ncahlc.org>) or (800) 621-7440. Washington University is a member of the Association of American Universities, the American Council on Education, the College Board and the Independent Colleges and Universities of Missouri.

The College of Arts & Sciences is a member of the Center for Academic Integrity, the Council of Colleges of Arts and Sciences, and the American Association of College Registrars.

The College of Architecture was one of the eight founding members of the Association of Collegiate Schools of Architecture (ACSA) in 1912.

The Graduate School of Architecture & Urban Design's Master of Architecture degree is accredited by the National Architectural Accreditation Board (NAAB). The Sam Fox School of Visual Arts & Design (Art) is a founding member of, and is accredited by, the National Association of Schools of Art and Design (NASAD).

The Olin Business School is a charter member of the Association to Advance Collegiate Schools of Business International (1921).

In the School of Engineering & Applied Science, many of the professional degrees are accredited by the Engineering Accreditation Commission of ABET (<http://abet.org>).

The School of Law is accredited by the American Bar Association.

The School of Medicine is a member of the Liaison Committee on Medical Education.

George Warren Brown School of Social Work is accredited by the Council on Social Work Education and the Council on Education for Public Health.

The University Libraries are a member of the Association of Research Libraries.

The Mildred Lane Kemper Art Museum is nationally accredited by the American Alliance of Museums.

# Graduate School of Arts & Sciences

The Graduate School of Arts & Sciences confers all Master of Arts (AM) and Doctor of Philosophy degrees at Washington University. Every AM program and 29 PhD programs are housed in Arts & Sciences departments. In addition, the Graduate School cooperates with the schools of Business, Engineering, Medicine, and Social Work on the administration of 28 PhD programs housed in those schools.

## Governance

The Graduate Council serves as the legislative branch of the Graduate School. The Council consists of one faculty representative and one graduate student representative from each degree-granting program; it is chaired by the Dean of the Graduate School and Vice Provost for Graduate Education. Much of the work of the Council occurs in committees, on which students serve alongside faculty members. This model of shared governance — equal representation and equal responsibility for faculty and graduate students — is believed to be unique among U.S. universities.

## Doctoral Degrees

The PhD is not only an exploration of the knowledge in a given discipline but also an original contribution to it. To the extent that doctoral education has been successful, the student's relationship to learning is significantly changed. Having made a discovery, developed an insight, tested a theory, or designed an application, the PhD recipient is no longer a student but a colleague of the faculty. It is for this reason that the PhD is the highest degree offered by a university.

The core mission of PhD programs at research universities is to educate the future faculty of other research universities and institutions of higher education. Graduates of Washington University participate in research and teaching; they also make valuable contributions to society by applying the analytical and creative skills required for scholarship to careers in business, government, and nonprofit sectors. The Graduate School therefore works with other University offices to ensure that students have the opportunity to develop these transferable skills.

Among the critical components the university provides for these purposes are a small and select graduate student body, faculty members dedicated to scholarly work, and the physical facilities needed for research. In these regards Washington University compares favorably to the finest graduate institutions in the world. But the key ingredients of PhD completion must be provided by the student: a love of learning and a desire

to increase the sum of human knowledge. Motivation and perseverance are prerequisites for success in PhD programs.

## Academic Information

### General Requirements

To earn a PhD at Washington University, a student must complete 72 semester hours, maintain satisfactory academic progress, pass certain examinations, fulfill residence and teaching requirements, write, defend, and submit a dissertation, and file an Intent to Graduate form on WebSTAC (<https://acadinfo.wustl.edu>).

### Semester Hours

Programs vary greatly in distributing their students' semester hours between those earned by taking courses and those earned by doing research, but the completed semester hours must total 72. Full-time students register for 9-12 hours per semester and thus finish this requirement in their first three to four years of graduate study. Thereafter, full-time student status can be maintained by registering for doctoral continuing student status. Part-time student status can be maintained by registering for nonresident student status.

### Courses

To count toward the 72-hour requirement, courses must be offered at the graduate level, taken for a grade, and approved in advance by the student's adviser and program as eligible to count toward the student's degree. Depending on the program, graduate-level work begins with courses numbered in the 400s or 500s. Audited courses and courses taken pass/fail cannot be counted toward the degree and may not be eligible for tuition remission. Students should consult their advisers regarding these options.

When certain conditions apply, graduate students may be permitted to register for Arts & Sciences courses numbered below 400, but they may not ordinarily be counted for credit toward a graduate degree, and they are not covered by tuition scholarships unless taken in addition to 9 hours at the graduate level or approved by the Dean of the Graduate School or his designee. University College offers undergraduate and graduate courses in the evenings during the academic year and both by day and at night during the summer. Full-time students in the Graduate School who wish to take graduate courses in University College or Summer School for credit toward their degree programs must obtain the approval both of their academic adviser and of the Dean of the Graduate School. Tuition remission may be available for such approved course work.

### Registration

Students newly admitted to Graduate Arts & Sciences receive from the University Registrar information on creating a WUSTL

Key that is used to register online via WebSTAC during open registration periods. All registrations require online approval by the student's faculty adviser and are monitored by the Graduate School.

## Grades

Credit-conferring grades for graduate students in Arts & Sciences are these: A, outstanding; B, good; C, conditional (an A, B or C grade may be modified by a plus or minus); S, satisfactory; and U, unsatisfactory (used almost exclusively for semester hours earned by doing research). Other grades are F, failing; N, not submitted yet; X, final examination missed; and I, incomplete. The mark of I becomes a permanent part of the student's record after the lapse of one calendar year unless the program in which the mark was assigned requests an extension of time.

Arts & 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.

## Retaking a Course

Graduate students may be allowed to retake a course with prior permission from their department or program. The department can refuse the student's request. If permission to retake a course is granted, both registrations will show on the transcript. The grade for the first enrollment will always be replaced by the symbol R, whether or not it is lower than or equal to the original grade. The grade for the second enrollment will be used to calculate the GPA. The grade for the first enrollment will not be replaced with an R until the second enrollment is completed and its grade has posted. A student who retakes a course without prior permission might not receive permission retroactively and might not receive credit for the second enrollment. No student may use the retake option to replace a grade received as a sanction for violation of the Academic Integrity Policy. The R option may be invoked only once per course, and the original grade option must be retained.

## Transferred Credits

For PhD students, the maximum credit ordinarily transferable is one full year of study (24 semester hours). Applications to transfer credit are not ordinarily approved, however, until one full year has been completed at Washington University. Academic credits counted toward requirements for the bachelor's degree are ordinarily not transferable toward the doctoral degree. Likewise, academic credits counted toward requirements for any completed graduate degree are ordinarily not transferable toward a subsequent degree of equivalent or lower level.

## Satisfactory Academic Progress

Satisfactory academic progress for students in PhD programs is monitored by the Graduate School as well as the degree program. Failure to maintain satisfactory academic progress

may result in immediate dismissal or in placement on academic probation for the ensuing year. Most financial awards, and all federally funded awards, are contingent on the maintenance of satisfactory academic progress. Moreover, satisfactory academic progress is a prerequisite for service on any committee authorized by the Graduate School. The following are minimal standards of satisfactory academic progress for PhD students; degree programs may set stricter standards, but must not relax these.

1. Students are expected to proceed at a pace appropriate to enable them to finish within the time limits discussed below. No later than the end of the fourth year of full-time graduate study, students are expected to have completed all PhD requirements except for the dissertation.
2. Students are expected to maintain a cumulative grade point average of at least 3.0 on a 4.0 scale in courses that count toward their 72 hours. Thus, among courses of equal weight, each grade of C must be balanced by at least one A. (Note that plus and minus marks alter the numerical value of a letter grade.)
3. Students are expected not to carry at one time any more than 9 semester hours for which the grades of I (incomplete), X (final examination missed), or N (not yet submitted) are recorded. The Graduate School may deny a student with more than 9 unfinished credits permission to register.
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. The Title, Scope, and Procedure form must be filed before the fifth year in order to identify membership of the student's Research Advisory Committee.
5. Students in doctoral programs have up to seven calendar years, dated from their first registration in a graduate degree program at Washington University, to complete degree requirements. Extension of the period of doctoral study may be granted on an annual basis if circumstances warrant. Extensions are obtained by application by the student to the degree program, endorsement by the degree program to the Graduate School, and approval by the Graduate School. Students will not be allowed to register for an 11th consecutive year.

## Qualifying Examinations

Progress toward the PhD is contingent upon passing examinations variously called preliminary, qualifying, general, comprehensive, or major field exams. The qualifying process varies according to the program. In some programs, it consists of a series of incremental, sequential, and cumulative exams over a considerable time. In others, the exams are held in a relatively short period. Exams may be taken orally or in writing; they may be replaced by one or more papers. The program, which determines the form these required examinations take, is

responsible for notifying the Graduate School of the student's successful completion of them.

### **Residence Requirements**

The residence requirements for the PhD are:

1. that each student must earn at least 48 semester hours of the required 72 at Washington University *and*
2. that each student must spend at least one academic year registered for full-time credits (9-12 in the fall followed by 9-12 in the spring) at Washington University.

Any exceptions to these requirements must be approved by the Dean of the Graduate School. All PhD programs prefer that students remain full-time and in residence throughout their work toward the degree.

### **Teaching Requirement**

Graduate students must meet department and Graduate School-wide teaching requirements. PhD students must demonstrate competency in teaching at the basic level and at the advanced level. For more information, students should consult their Director of Graduate Studies for discipline-specific guidelines on fulfilling the requirements.

### **The Dissertation**

Each candidate, as evidence of mastery of a specific field of knowledge and capacity for original, scholarly work, must complete a dissertation. 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 led by the student's major adviser and must be approved by the Graduate School.

A Title, Scope, and Procedure Form for the dissertation must be signed by the committee members and by the program Chair. It must be submitted to the Graduate School at least six months before the degree is expected to be conferred or before beginning the fifth year of full-time enrollment, whichever is earlier.

A Doctoral Dissertation Guide, which gives instructions regarding the format of the dissertation, is available on the Graduate School's Policies and Guides page (<http://graduateschool.wustl.edu/policies-and-guides>); it should be read carefully at every stage of a student's dissertation preparation. The Graduate School requires each student to make the full text of the dissertation available to the committee members for their review at least one week before the defense. Most degree programs require two or more weeks for the review period; students should check with their faculty.

### **Dissertation Defense**

Approval of the dissertation by the Research Advisory Committee is necessary to bring it to the defense. The

committee before which the student is examined consists of at least five members, who normally meet two independent criteria:

1. Four of the five must be tenured or tenure-track Washington University faculty; one of these four may be a member of the emeritus faculty. The fifth member must have a doctoral degree and an active research program, whether at Washington University, at another university, in government, or in industry.
2. Three of the five normally come from the student's degree program; at least one of the five must not.

All committees must be approved by the Dean of the Graduate School of Arts & Sciences or by his or her designee, regardless of whether they meet the normal criteria.

The committee is appointed by the Dean of the Graduate School upon the request of the degree program. The student is responsible for making the full text of the dissertation accessible to his or her committee members for their review in advance of the defense. Faculty and graduate students who are interested in the subject of the dissertation are normally welcome to attend all or part of the defense but may ask questions only at the discretion of the committee members. Though there is some variation among degree programs, the defense ordinarily focuses on the dissertation itself and its relation to the student's field of expertise.

### **Dissertation Submission**

After the defense, the student must submit an electronic copy of the dissertation online to the Graduate School. The submission website requires students to choose among publishing and copyrighting services offered by ProQuest UMI, but the university permits students to make whichever choices they prefer. Students are asked to submit the Survey of Earned Doctorates separately. The degree program is responsible for delivering the final approval form, signed by the committee members at the defense and then by the program chair or director, to the Graduate School. Students who defend their dissertations successfully have not completed their PhD requirements; they finish earning the degree only when their dissertation submission has been accepted by the Graduate School.

### **Graduation Information**

Students are responsible for filing an Intent to Graduate form in order to have each earned degree conferred. The Intent to Graduate is available online through WebSTAC. Deadlines for filing an Intent to Graduate are listed on the Graduate School's website. No degree will be awarded if this form has not been filed. Students who do not complete their degree requirements by their intended graduation date must re-file for the next graduation date.

## Specific Circumstances

### ***Changes in Program of Study***

Students are usually admitted to the Graduate School of Arts & Sciences to study toward specific degrees. Therefore, a change in the degree objective (e.g., from AM to PhD) is subject to the approval of the student's program and of the Graduate School. A request for a change in the subject of study (e.g., from economics to history) requires the approval of both programs concerned as well as that of the Graduate School. Students may be required to fill out a new application for admission before making such changes, but they will not be charged a second application fee.

### ***Student Grievance Procedures***

From time to time, students may feel that they have legitimate complaints regarding academic matters or an interaction with 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 their faculty adviser, then from their Director of Graduate Studies, and finally the chair of their degree program. Complaints which remain unresolved may be addressed to any of the deans in their School. The final court of appeal for all graduate students in Arts & Sciences is the Dean of the Graduate School.

All complaints regarding academic and professional integrity should be addressed to an Associate Dean of the Graduate School of Arts & Sciences.

Washington University policies state that members of the university community can expect to be free from discrimination and harassment. Students, faculty, staff, and outside organizations working on campus are required to abide by specific policies prohibiting harassment.

An allegation of 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. Visit <http://hr.wustl.edu/policies/Pages/SexualHarassment.aspx> for more information.

### ***Leaves of Absence***

Students who wish to suspend their graduate study should apply for a leave of absence. A student's application for a leave of absence must be endorsed by the degree program and then approved by the Graduate School.

Such a leave may be personal or medical. In the case of a medical leave the student must present authorization from Student Health Services at the beginning and again at the end of the leave. At the end of any leave of absence, a student is reinstated into the Graduate School under the conditions prevailing at the time the leave was granted. Being on leave suspends student status and financial support from the

university. Taking a leave therefore may adversely affect loan deferment, visa status, the right to rent university-owned housing, etc. Most visa types would prevent international students from remaining in the United States while taking a leave of absence; such students should consult the Office for International Students and Scholars (<http://oiss.wustl.edu>) as well as their faculty adviser, their program's Director of Graduate Studies, and perhaps a dean.

### ***Withdrawals***

Students wishing to withdraw from their program must give notice in writing by filling out the Graduate School's Withdrawal form. This form must include the date when the withdrawal should be considered effective. Without such information, there may be serious financial repercussions for the student and/or the university.

### ***Dismissals***

A program may wish to dismiss a student for a number of reasons: willful misrepresentation to gain admission to graduate study, breaches of academic integrity, academic failure, or behavior destructive of the welfare of the academic community. Dismissals are recommended by the degree program and are not final until approved by the Graduate School. Any student who believes his or her dismissal was undeserved may appeal to the Dean of the Graduate School, who may accept or decline the program's recommendation to dismiss the student.

### ***Time Off for Graduate Students Who Are Engaged in Research***

**The Graduate Council approved the following policy in 2002:**

Students working toward Arts & 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 cannot resolve the dispute, the Dean of the Graduate School of Arts & Sciences, or his/her designee, will serve as the final arbiter.

## Interdisciplinarity

### *Interdisciplinary Course Work*

PhD students can discuss with their advisers individual courses available outside their school that may advance their research or professional goals. A university tuition agreement signed by all the deans of the university's graduate and professional schools fosters interdisciplinary study across the schools and allows enrollment in classes outside the student's home school. Many courses, undergraduate as well as graduate, are available for graduate student enrollment subject to eligibility guidelines:

- Students must be registered full time in graduate degree programs and have the approval of their faculty adviser or administrative officer to take a course outside their home school.
- Courses will be open to students outside the discipline only if the students have met the required prerequisites, have the approval from their department, and the course instructor agrees to admit such students.
- Finally, courses in the evening divisions, including University College and its Summer School, are not part of this agreement, and courses requiring individualized instruction and/or additional fees (such as independent studies or individual music lessons) are also excluded.

### *Joint and Dual Degree Programs*

The university has set up numerous programs permitting students to earn two graduate and/or professional degrees at the same time. One of these programs includes a PhD degree from Arts & Sciences:

*Medical Scientist Training Program (MD/PhD in various disciplines)*

The Graduate School uses the term "joint degree" to refer to programs in which one or more semester hours are counted toward both degrees. The Graduate School uses the term "dual degree" to refer to programs in which no semester hours are counted toward both degrees. Interested students must apply to and be admitted by each degree program separately, but ideally all applications should be made before beginning graduate or professional study. Joint and dual degrees are ordinarily conferred simultaneously, after all the requirements for both degrees have been met.

Students wishing to pursue joint or dual degrees other than these may be permitted to do so, but such requests are considered on a case-by-case basis.

Admission to an individualized joint degree program between two Arts & Sciences disciplines on the Danforth Campus must be recommended by the Directors of Graduate Studies for both disciplines and approved by the Dean of the Graduate School. Admission to an individualized joint degree program involving another school of the university must be recommended by the

Directors of Graduate Studies for both disciplines and approved by the deans of both schools. Recommendations should address a variety of academic and administrative concerns, including the timeline for completion of both degrees and responsibility for funding the student and remitting the tuition. Students should not undertake study toward an individualized joint degree program until it has been fully approved.

### *Graduate Certificates*

The certificates offered to full-time students in the Graduate School are all interdisciplinary in nature:

- American Culture Studies (p. 30)
- Film and Media Studies (p. 88)
- Language Instruction (p. 133)
- Latin American Studies (p. 100)
- Translation Studies (p. 55)
- Urban Studies (p. 140)
- Women, Gender, and Sexuality Studies (p. 141)

Graduate certificates are open to students in PhD programs at Washington University. They require 15 semester hours, 6 of which should also be counted toward the requirement of 72 semester hours for the PhD. Interested students must fill out an application for admission to a certificate program and receive the approval of their degree program's chair, the certificate program's director, and the dean of the Graduate School. The application form is posted on the Graduate School's website ([http://graduateschool.wustl.edu/prospective\\_students/application-instructions](http://graduateschool.wustl.edu/prospective_students/application-instructions)). Tuition remission is usually available for the additional semester hours required to complete a certificate program; however, earning a certificate does not increase a student's expected time to degree or amount of stipend support. No student will be admitted to, given tuition remission for, or awarded more than one graduate certificate.

## Financial Information

The amounts and vehicles of financial support for graduate students are usually decided by individual Schools. Washington University is committed to funding most PhD students for 4-6 years, depending on the time needed to complete their particular program. Funding typically consists of full tuition remission and 10-12 months of assistantship pay or fellowship stipend to defray living expenses. Monetary support may come from the university or from outside sources, and it may be administered by an individual faculty member or by the staff of the program or the School.

## Financial Support

### *Tuition Scholarships*

Scholarships to cover part or all the costs of tuition are available to both new and continuing students. Beyond the course work requirements for degrees, partial or full tuition scholarships

covering the Continuing Student Status fee will be considered only for students who are receiving a fellowship from the Graduate School, an externally funded fellowship or traineeship that funds tuition remission at least partially, or an internally funded assistantship. Since perception of academic merit is the sole criterion for the award of tuition scholarships, they are not subject to taxation under federal tax law at this time.

### **Teaching Assistantships**

Most PhD programs permit graduate students to work as teaching assistants. The duties of a teaching assistant vary widely across the disciplines. 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 assistants are highly valued members of the Washington University instructional team. They are customarily trained by their program in the pedagogical skills required for their discipline. In addition, the Washington University Teaching Center conducts an annual university-wide orientation for all new teaching assistants, consults with the faculty on program-specific training, sponsors workshops on teaching, and helps instructors learn to use multimedia options in university 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 students are required to pass a special pedagogy/oral proficiency examination before serving as teaching assistants. Students often find the standards for reading, writing, and speaking English required of teaching assistants to be higher than the standards they previously met for admission. A comprehensive array of courses in English as a second language is available for international students who would benefit from it. Tuition remission for one such course per semester is usually available until students complete their credit hour requirement.

Domestic students who have demonstrated financial need according to certain federally specified criteria may be eligible for teaching assistantships supported by the Federal Work Study program. Eligibility for Federal Work Study can be determined only by analysis of detailed financial information that students being appointed as teaching assistants will be asked to provide.

### **Research Assistantships**

Except in unusual cases, research assistantships are available only to doctoral students who have completed at least one full year of graduate study. They are generally, but not exclusively, found in the natural and social sciences, and are offered through departments, committee-run programs, and research centers. Research assistantships allow participation in collaborative enterprises of research and in the discipline's community of scholars.

### **Traineeships**

Many degree programs, especially in the biological and behavioral sciences, fund students by means of traineeships. They may be awarded on an annual basis or may be renewable for periods up to three years, subject to satisfactory academic progress. Traineeships frequently emphasize research, but in the applied social sciences they might combine theory, research, and clinical experience in the field.

### **Fellowships**

Fellowships, which provide a living stipend without requiring duties other than satisfactory academic progress, may be awarded to a student by the Graduate School of Arts & Sciences, the student's degree program, or the student's adviser. In addition, a student may apply for and win certain fellowships that are awarded directly to the student. These require administration by the Graduate School, which also administers two unique university-wide fellowships: the Chancellor's Graduate Fellowships and the Mr. and Mrs. Spencer T. Olin Fellowships. These awards provide year-round funding for four to five years. Prospective students must apply for them at the time of their application for admission, not after they have enrolled here as graduate students.

### **Loans**

Federally underwritten loans are another centrally administered resource for students who are U.S. citizens or permanent residents. Some funds are available through the Perkins Direct Student Loan Program. Stafford loans can be arranged for a larger number of graduate students. Applicants for these loans are required to submit both the Free Application for Federal Student Aid (FAFSA) and the Washington University Family Financial Profile (FFP). The Graduate School of Arts & Sciences determines eligibility and processes loan applications for all PhD students at Washington University. For more information about applying for loans, please visit the Graduate School's Financial Information pages ([http://graduateschool.wustl.edu/prospective\\_students/financial-information](http://graduateschool.wustl.edu/prospective_students/financial-information)).

## **Financial Costs**

### **Tuition Charges and Refunds**

The maximum tuition fee is the equivalent of 12 semester 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. The tuition rate is subject to annual change.

Requests for refund of tuition paid by a student who is withdrawing from a degree program should be made by submitting a Withdrawal Form to the Graduate School office. Requests for refund of tuition paid by a student who is withdrawing from a specific course should be submitted in

writing to the Graduate School Registrar. The last date of class attendance is ordinarily used in determining the amount that can be refunded. 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 prorated refund of tuition if notice of withdrawal is received before the end of the 12th week of the semester. Students who have had their full tuition remitted for them by their School or by a third party will not receive any refund.

### Health Fees

All full-time students on the Danforth Campus are charged a mandatory health fee. This fee gives access to Student Health Services. In addition, full-time students on the Danforth Campus must either enroll in the student health insurance plan or present proof of comparable coverage. Both the health fee and the health insurance premium are subject to annual change. The Graduate School subsidizes both costs for most full-time fully supported students.

There is also a health fee for full-time students in degree programs based on the Medical Campus. It includes coverage equivalent to a health insurance plan. Details can be found at <http://wusmhealth.wustl.edu>.

### Academic Fees

The academic fees discussed below apply to students who wish to maintain their degree candidacy during semesters in which they do not enroll for course work or research hours and to students eligible for full-time status despite enrollment for fewer than 9 semester hours. These fees are subject to change annually. Note that students receiving financial assistance from the Graduate School of Arts & Sciences (fellowships, assistantships, etc.) are required to maintain full-time student status by registering either for at least 9 semester hours or for doctoral continuing student status.

Students who have completed the semester hours required for their graduate degree and who continue to make full-time progress toward completing that degree may register for continuing student status, which incurs a fee in most Schools but does not confer course credit. Students in this category are granted, without additional charge, normal use of laboratories, libraries, and other university facilities. The course number that confers continuing student status is also used by students who register for fewer than 9 semester hours in any term and wish to maintain full-time standing.

Doctoral nonresident status likewise incurs a fee and does not confer course credit. It is the required registration for students who have acquired full-time employment. Nonresident status does not imply geographical location but implies less than full-

time involvement in graduate study; this registration is used only by part-time students. Students in this category can make normal use of most university facilities.

Students deciding how to register need to consider the consequences of part-time student status. Nonresident students have no financial aid from the university, no student health insurance or access to Student Health Services, no deferment of any federal student loans they have, and no right to rent university-owned housing. Also, most international students are required to maintain full-time status.

## Master's Degrees

There are different ways to earn a master's degree at Washington University:

- Students who have not previously earned a master's degree in the same field as their PhD may earn the Master of Arts (AM) on the way to their PhD. This option is available in some disciplines but not in all of them.
- Students who have not previously earned a master's degree in the same field as their PhD may be awarded an AM for work done in a PhD program that they are leaving without completing. This option is available in some disciplines but not in all of them.
- There are a number of Arts & Sciences disciplines that admit students to pursue a terminal master's degree. Half of these are day-time programs for full-time students; these are described by their departments (p. 30) in other sections of this *Bulletin*. The other half of these terminal master's programs are designed primarily for part-time students and offer their classes in the evening; these are described by University College (p. 144) in its section of this *Bulletin*.
- Undergraduate students at Washington University may apply for the Accelerated AB/AM program, in which graduation with an AB is followed by one year of graduate study leading to the AM. This option is described in the Accelerated AB/AM (p. 14) section of this *Bulletin*.

## Academic Information

### General Requirements for AM Degrees

The minimum requirement of the Master of Arts degree (AM) is 30 credits. If the AM is awarded in a program of study in which Washington University awards a PhD with an identical disciplinary title, the minimum requirement is 36 credits. Any master's degree program can require a master's thesis, make the thesis optional, or decline to offer a thesis. No more than 6 credits toward the AM can be awarded for master's thesis research. A master's thesis must be defended before a committee of no fewer than three faculty members. A master's without thesis must include an examination which tests competence in the field of study. Degree programs are free to

add additional requirements. In addition, master's students must maintain satisfactory academic progress and fulfill residence requirements.

### **Semester Hours**

Full-time students register for 9-12 hours per semester. Master's students who have completed their course work and need additional time to complete other degree requirements should register for master's continuing student status to maintain full-time student status. Part-time student status can be maintained by registering for nonresident candidate status. Continuous registration is required. Students who do not register for two consecutive semesters will be considered candidates for dismissal.

### **Courses**

To count toward a master's degree, courses must be offered at the graduate level, taken for a grade, and approved in advance by the student's adviser and program as eligible to count toward the student's degree. Depending on the program, graduate-level work begins with courses numbered in the 400s or 500s. Audited courses and courses taken pass/fail (or credit/no credit) cannot be counted toward the degree and may not be eligible for tuition remission. Students should consult their advisers regarding these options.

### **Registration**

Students newly admitted to Graduate Arts & Sciences receive from the University Registrar information on creating a WUSTL Key that is used to register online via WebSTAC during open registration periods. All registrations require online approval by the student's faculty adviser and are monitored by the Graduate School.

### **Grades**

Credit-conferring grades for graduate students in Arts & Sciences are these: A, outstanding; B, good; C, conditional (an A, B or C grade may be modified by a plus or minus); S, satisfactory; and U, unsatisfactory (used almost exclusively for semester hours earned by doing research). Other grades are F, failing; N, not submitted yet; X, final examination missed; and I, incomplete. The mark of I becomes a permanent part of the student's record after the lapse of one calendar year unless the program in which the mark was assigned requests an extension of time.

Arts & 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.

### **Retaking a Course**

Graduate students may be allowed to retake a course with prior permission from their department or program. The department can refuse the student's request. If permission to retake a course

is granted, both registrations will show on the transcript. The grade for the first enrollment will always be replaced by the symbol R, whether or not it is lower than or equal to the original grade. The grade for the second enrollment will be used to calculate the GPA. The grade for the first enrollment will not be replaced with an R until the second enrollment is completed and its grade has posted. A student who retakes a course without prior permission might not receive permission retroactively and might not receive credit for the second enrollment. No student may use the retake option to replace a grade received as a sanction for violation of the Academic Integrity Policy. The R option may be invoked only once per course, and the original grade option must be retained.

### **Transferred Credits**

A maximum of 6 semester hours 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 hours may be transferred toward fulfillment of the requirements for the degree Master of Arts in Education (MAEd) from institutions that have entered into special cooperative agreements with Washington University for this purpose. Applications to transfer credits for a master's degree are not ordinarily approved until one full semester of study (12 semester hours) has been completed at Washington University. Academic credits applied to complete requirements for the bachelor's degree are ordinarily not transferable toward the fulfillment of advanced degree requirements at Washington University. Likewise, academic credits counted toward requirements for any completed graduate degree are ordinarily not transferable toward a subsequent degree of equivalent or lower level.

### **Satisfactory Academic Progress**

Satisfactory academic progress for graduate students in Arts & Sciences is monitored by the Graduate School as well as the degree program. Failure to maintain satisfactory academic progress may result in immediate dismissal or in placement on academic probation for the ensuing year. Most financial awards, and all federally funded awards, are contingent on the maintenance of satisfactory academic progress. Moreover, satisfactory academic progress is a prerequisite for service on any committee authorized by the Graduate School. The following are minimal standards of satisfactory academic progress for master's students; degree programs may set stricter standards, but must not relax these.

1. Students are expected to proceed at a pace appropriate to enable them to finish within the time limits customary in their degree program. At most, students enrolled in master's degree programs have four calendar years, dated from their first registration in a graduate degree program at Washington University, to complete degree requirements.
2. Students are expected to maintain a cumulative grade point average of at least 3.0 on a 4.0 scale in courses that count

toward their semester hours. Thus, among courses of equal weight, each grade of C must be balanced by at least one A. (Note that plus and minus marks alter the numerical value of a letter grade.)

3. Students are expected not to carry at one time any more than 9 semester hours for which the grades of I (incomplete), X (final examination missed) or N (not yet submitted) are recorded. The Graduate School may deny a student with more than 9 unfinished credits permission to register.

### **Residence Requirement**

The residence requirement for master's degree students is that each student must spend at least one academic year registered for full-time credits (9-12 in the fall followed by 9-12 in the spring) at Washington University. Any exceptions to this requirement must be approved by the Dean of the Graduate School. All daytime programs prefer that students remain full-time and in residence throughout their work toward the degree.

### **Thesis**

The thesis topic is subject to approval by the student's faculty adviser and by the chair of the degree program. As soon as the thesis topic has been approved, but no later than six months before the thesis defense is likely to occur, students should submit the Title, Scope, and Procedure Form to the Graduate School. It must be signed by the three-member committee before whom the student will defend the thesis, and by the chair of the degree program. At least three members of the thesis committee must be Washington University faculty; at least two of them must be appointed in the student's degree program and at least two of them (not necessarily the same two) must be tenured or tenure-track, including the committee chair or co-chair. Exceptions must be approved by the Dean of the Graduate School or his or her designee.

A Master's Thesis Guide, which gives instructions regarding the format of the thesis, is available on the Graduate School's Policies and Guides page (<http://graduateschool.wustl.edu/policies-and-guides>); it should be read carefully at every stage of thesis preparation. The Graduate School requires each student to make the full text of the thesis available to the committee members for their review at least one week before the defense. Most degree programs require two or more weeks for the review period; students should check with their faculty.

After the defense, the student must submit an electronic copy of the thesis online to the Graduate School. The degree program is responsible for delivering the Master's Approval form, signed by the committee members at the defense and then by the program chair, to the Graduate School. Students who defend their theses successfully have not completed their master's requirements; they finish earning the degree only when their thesis submission has been accepted by the Graduate School.

### **Graduation Information**

Students are responsible for filing an Intent to Graduate form in order to have their earned degree conferred. The Intent to Graduate is available online through WebSTAC (<http://acadinfo.wustl.edu>). Deadlines for filing an Intent to Graduate are listed on the Graduate School's website. No degree will be awarded if this form has not been filed. Students who do not complete their degree requirements by their intended graduation date must re-file for the next graduation date.

### **Specific Circumstances**

#### **Changes in Program of Study**

Students are usually admitted to the Graduate School of Arts & Sciences to study toward specific degrees. Therefore, a change in the degree objective (e.g., from AM to PhD) is subject to the approval of the student's program and of the Graduate School. A request for a change in the subject of study (e.g., from economics to history) requires the approval of both programs concerned as well as that of the Graduate School. Students may be required to fill out a new application for admission before making such changes, but they will not be charged a second application fee.

#### **Student Grievance Procedures**

From time to time, students may feel that they have legitimate complaints regarding academic matters or an interaction with 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 their faculty adviser, then from their Director of Graduate Studies, and finally the chair of their degree program. Complaints which remain unresolved may be addressed to any of the deans in their School. The final court of appeal for all graduate students in Arts & Sciences is the Dean of the Graduate School.

All complaints regarding academic and professional integrity should be addressed to an Associate Dean of the Graduate School of Arts & Sciences.

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## Leaves of Absence

Students who wish to suspend their graduate study should apply for a leave of absence. A student's application for a leave of absence must be endorsed by the degree program and then approved by the Graduate School.

Such a leave may be personal or medical. In the case of a medical leave the student must present authorization from Student Health Services at the beginning and again at the end of the leave. 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. Being on leave suspends full-time student status and financial support from the university. Taking a leave therefore may adversely affect loan deferment, visa status, the right to rent university-owned housing, etc. Most visa types would prevent international students from remaining in the United States while taking a leave of absence; such students should consult the Office for International Students and Scholars (<http://oiss.wustl.edu>) as well as their faculty adviser, their program's Director of Graduate Studies, and perhaps a dean.

Prior to taking a leave of absence, students should consider their need for health insurance coverage. The continuation of student health insurance and access to Student Health Services depends on such factors as the kind of leave (medical or personal), the length of time the student has already been covered during the current insurance year, and the student's location during the leave. Students should consult the Student Health Services website (<http://shs.wustl.edu>) for current policies with regard to leaves of absence; these policies may change annually if insurance carriers change.

## Withdrawals

Students wishing to withdraw from their program must give notice in writing by filling out the Graduate School's Withdrawal form. This form must include the date when the withdrawal should be considered effective. Without such information, there may be serious financial repercussions for the student and/or the university.

## Dismissals

A program may wish to dismiss a student for a number of reasons: willful misrepresentation to gain admission to graduate study, breaches of academic integrity, academic failure, or behavior destructive of the welfare of the academic community. Dismissals are recommended by the degree program and are not final until approved by the Graduate School. Any student who believes his or her dismissal was undeserved may appeal to the Dean of the Graduate School, who may accept or decline the program's recommendation to dismiss the student.

## Time Off for Graduate Students Who Are Engaged in Research

**The Graduate Council approved the following policy in 2002:**

Students working toward Arts & 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 cannot resolve the dispute, the Dean of the Graduate School of Arts & Sciences, or his/her designee, will serve as the final arbiter.

## Interdisciplinarity

### Joint and Dual Degree Programs

The university has set up numerous programs permitting students to earn two graduate and/or professional degrees at the same time. Five of these programs include an AM degree from Arts & Sciences:

- Joint Master of Social Work / Master of Arts in Jewish Studies
- Joint Master of Social Work / Master of Arts in Education
- Joint Master of Business Administration / Master of Arts in East Asian Studies
- Joint Juris Doctoris / Master of Arts in East Asian Studies
- Master's Program for Medical Students (MD/AM in Biology & Biomedical Sciences)

The Graduate School uses the term "joint degree" to refer to programs in which one or more semester hours are counted toward both degrees. The Graduate School uses the term "dual degree" to refer to programs in which no semester hours are counted toward both degrees. Interested students must apply to and be admitted by each degree program separately, but ideally all applications should be made before beginning graduate or professional study. Joint and dual degrees are ordinarily conferred simultaneously, after all the requirements for both degrees have been met. For details of the programs

listed above, students should consult the websites of the two disciplines.

### **Accelerated AB/AM Program**

This program allows qualified Washington University undergraduates to complete a Master of Arts (AM) degree in a one-year accelerated program after completing the AB degree. The undergraduate and graduate degrees are awarded sequentially, with admission to the master's degree, if approved, for the fall semester following completion of the undergraduate degree in the preceding December, May, or August. There are no application deadlines (applications may be submitted anytime during the senior year and up to the beginning of classes in the fall), and the GRE is not required. The program is available only to students currently in their senior year and only for continuous enrollment in the next year. There is no option for deferred admissions.

In order to complete an AM in one year, students may apply five courses taken at the 400 level or above as an undergraduate (with a maximum of 16 units) toward master's degree programs which require 36 or more units for completion. For master's programs which require fewer than 36 units, three courses at the 400 level or above (with a maximum of 12 units) may be applied. Master's programs requiring more than 36 units may require an additional semester or summer of enrollment. Undergraduate courses must be acceptable to the department or program offering the master's degree and must be completed with a final grade of B or higher. All admissions are provisional until the successful completion of the AB. Some departments may not participate in this program, and some departments that do not otherwise offer a master's degree may provide this opportunity to Washington University undergraduates. Please consult the home department and our website (<http://graduateschool.wustl.edu>) for more detailed information. Actual award of each degree is contingent on successful completion of all requirements for that degree. The application for admission must be made to the department, which forwards the application and the department's recommendation for admission to the Graduate School. There is no application fee. Students accepted into the program will retain their student ID numbers and will not need to replace their ID cards. In every other respect, they will be treated as new students in the Graduate School and should familiarize themselves with the relevant sections of this *Bulletin*.

## **Financial Information**

Master's degree programs vary considerably in the extent to which they are eligible for financial support from the Graduate School or degree program. Typical awards for day students include scholarships for part or all of their tuition charges. Part-time employment and student loans are possible sources of support. Students in some master's programs may be able to obtain work as an instructional aide.

## **Financial Support**

### **Tuition Scholarships**

Scholarships to cover part or all the costs of tuition are available to both new and continuing students. Since perception of academic merit is the sole criterion for the award of tuition scholarships, they are not subject to taxation under federal tax law at this time.

### **Loans**

Federally underwritten loans are another resource for students who are U.S. citizens or permanent residents. Some funds are available through the Perkins Direct Student Loan Program. Stafford loans can be arranged for a larger number of graduate students. Applicants for these loans are required to submit both the Free Application for Federal Student Aid (FAFSA) and the Washington University Family Financial Profile (FFP). The Graduate School of Arts & Sciences determines eligibility and processes loan applications for all full-time master's students in daytime programs. For more information about applying for loans, please visit the Graduate School's Financial Information pages ([http://graduateschool.wustl.edu/prospective\\_students/financial-information](http://graduateschool.wustl.edu/prospective_students/financial-information)).

### **Instructional Aides**

These are awarded to eligible students based on curricular needs of departments and programs and are not guaranteed in advance. Students can be assigned to assist a faculty member in teaching a course. The duties of instructional aides vary widely across the disciplines. They may include assisting faculty in the preparation, instruction and grading of an undergraduate course, in monitoring the laboratory segment of an undergraduate course, or in tutorial responsibilities.

## **Financial Costs**

### **Tuition Charges and Refunds**

The maximum tuition fee is the equivalent of 12 semester 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. The tuition rate is subject to annual change.

Requests for refund of tuition paid by a student who is withdrawing from a degree program should be made by submitting a Withdrawal Form to the Graduate School office. Requests for refund of tuition paid by a student who is withdrawing from a specific course should be submitted in writing to the Graduate School Registrar. The last date of class attendance is ordinarily used in determining the amount that can be refunded. 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 prorated refund of tuition if notice of withdrawal is received before the end of the 12th week of the semester. Students who have had their full tuition remitted for them by their School or by a third party will not receive any refund.

### **Health Fees**

All full-time students in Arts & Sciences are charged a mandatory health fee. This fee gives access to Student Health Services. In addition, they must either enroll in the student health insurance plan or present proof of comparable coverage. Both the health fee and the health insurance premium are subject to annual change.

### **Academic Fees**

The academic fees discussed below apply to students who wish to maintain their degree candidacy during semesters in which they do not enroll for course work or research hours and to students eligible for full-time status despite enrollment for fewer than 9 semester hours. These fees are subject to change annually. Note that students receiving financial assistance from the Graduate School of Arts & Sciences, such as instructional aides, are required to maintain full-time student status by registering either for at least 9 semester hours or for master's continuing student status.

Students who have completed the semester hours required for their graduate degree and who continue to make full-time progress toward completing that degree may register for continuing student status, which incurs a fee in most Schools but does not confer course credit. Students in this category are granted, without additional charge, normal use of laboratories, libraries, and other university facilities. The course number that confers continuing student status is also used by students who register for fewer than 9 semester hours in any term and wish to maintain full-time standing.

Master's nonresident status likewise incurs a fee and does not confer course credit. It is the required registration for students who have acquired full-time employment. "Nonresident status" does not imply geographical location but implies less than full-time involvement in graduate study; this registration is used only by part-time students. Students in this category can make normal use of most university facilities.

Students deciding how to register need to consider the consequences of part-time student status. Nonresident students have no financial aid from the university, no student health insurance or access to Student Health Services, no deferment of any federal student loans they have, and no right to rent university-owned housing. Also, most international students are required to maintain full-time status.

## **Administration**

The staff members of the Graduate School are here to help students complete graduate degrees successfully. They are committed to being of service to students, and they can be of inestimable assistance in navigating a program of graduate study.

Nevertheless, students should always ask questions first of their degree program's administrative faculty and staff. Many of the Graduate School's general policies are carried out by discipline-specific implementation plans, and much of the paperwork that enables a student to proceed must come to the Graduate School from the faculty and staff of the program rather than from the student.

For a listing of the administrative staff of the Graduate School of Arts & Sciences, please visit the "Administrators" section of this page.

## **Administrators**

### **Dean & Vice Provost for Graduate Education**

#### **William F. Tate**

Edward Mallinckrodt Distinguished University Professor in Arts & Sciences

### **Staff of the Graduate School of Arts & Sciences**

#### **Mary Clemens**

Engineering Student Coordinator

#### **Bridget Coleman**

Director of Admissions & Recruiting

#### **Kimberly Curtis**

Assistant Dean for Graduate Student Affairs

#### **Erin Daugherty**

Administrative Assistant and Data Coordinator

#### **Amy Gassel**

Assistant Director of Graduate Student Financial Services, Coordinator of Diversity Programs

#### **Cecily Stewart Hawksworth**

Administrative Assistant, Liberman Graduate Center Logistics Coordinator

#### **Pat Howard**

Assistant Dean, Registrar

#### **Lynn Lowry**

Program Coordinator

#### **Angie Mahon**

Assistant Registrar

**Diana Hill Mitchell**

Associate Dean for Policy and Program Analysis

**Sheri R. Notaro**

Associate Dean, Director of the Chancellor's Graduate Fellowship Program

**Rachel Pepe**

Operations Manager

**Nancy P. Pope**

Associate Dean, Director of the Olin Fellowship Program, Director of the Liberman Graduate Center

**Rachel Retzlaff**

Business Manager

**Susan Shannon**

Accounting & Payroll Assistant

## Admissions

### Eligibility

Washington University encourages and gives full consideration to all applicants for admission and financial aid without regard to race, color, age, religion, sex, sexual orientation, gender identity or expression, national origin, veteran status, disability, or genetic information.

Evidence considered by each admissions committee includes not only the quality of previous course work but also its relevance to the applicant's prospective program. Research experience in the discipline is always viewed favorably.

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 degree programs are encouraged and welcomed. To the greatest extent possible, students with disabilities are integrated into the student population as equal members.

### Application Process

Degree programs set their own application deadlines, which must be no later than January 15. Many deadlines are much earlier; applicants should check with their prospective programs. It is generally advantageous to the applicant to complete the application well in advance of the deadline.

Admissions and financial aid awards are for a specific academic year; students who do not matriculate that year must normally reapply. Admitted students can request a deferral of admission for up to one year, but 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 gaining additional evidence of qualification.

Degree programs in Arts & Sciences rarely admit applicants for the spring semester. Students interested in beginning graduate

study in the spring should consult their prospective program's faculty and staff.

The application is available online through the Graduate School website ([http://graduateschool.wustl.edu/prospective\\_students](http://graduateschool.wustl.edu/prospective_students)).

Applications are ready for final consideration after the following items have been submitted:

1. The application.
2. Official transcripts of all undergraduate and graduate courses taken by the applicant. The application review process will be greatly expedited by uploading unofficial copies of transcripts. Official transcripts will be required before an offer of admission will be made.
3. Official Graduate Record Examination (GRE) test scores.
4. Official TOEFL scores (for international applicants whose native language is not English).
5. Three reference forms and letters of recommendation completed by persons closely acquainted with the applicant, preferably those who have recently taught the student in relevant subjects.
6. Application fee or fee waiver.
7. Any additional material or interview required by the degree program.

The Graduate Record Examination (GRE) is required for admission to graduate programs in Arts & Sciences. The examination should be taken in time for results to reach Washington University directly from the Educational Testing Service before the application deadline.

Admissions recommendations are made by the faculty of each degree-granting program. Disciplines naturally require different preparation and various aptitudes in their applicants, so the admissions process is necessarily decentralized.

Students may be admitted to study for the PhD degree directly from baccalaureate study or after undertaking other graduate or professional education, whether at Washington University or at another accredited institution.

### Admission of International Students

International students considering application to Washington University for graduate study should have a general familiarity with academic practices and university customs in the United States. All international students are required to present evidence of their ability to support themselves financially during graduate study. International students whose native language is not English must submit score reports from the Test of English as a Foreign Language (TOEFL). The test should be taken in time for results to reach Washington University directly from ETS before the application deadline.

## Categories of Admission

Students are usually admitted to the Graduate School of Arts & Sciences as full-time candidates for a specific degree program. There are also two ways to take graduate courses without admission to candidacy for a degree: as a Student Not Candidate for a Degree (SNCD) or as an Unclassified Graduate Student.

### ***Student Not Candidate for a Degree (SNCD)***

SNCD admission may be granted to qualified students who hold a bachelor's degree or its equivalent, who wish to enroll in graduate courses on a non-degree basis, and who receive approval from a degree program. Examples include 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 faculty advisers and are accorded the same privileges as degree candidates. Applicants for SNCD study in the Graduate School should follow all application procedures outlined in the section headed "Application Process." Continuation as a Student Not Candidate for a Degree is subject to the same academic and other standards that apply to degree candidates. In special cases, SNCD students might be eligible for financial aid.

### ***Unclassified Graduate Student***

A student who wishes to enroll for selected graduate-level courses without admission to the Graduate School is generally permitted to do so by registering as an Unclassified Graduate Student with the Registrar of the Graduate School. Application for admission is not required for such registration, and permission to register as an Unclassified Graduate Student does not constitute admission. Permission to take more than 6 hours of graduate credit in any one program requires the approval of that program's Director of Graduate Studies. Unclassified students are not eligible for student services, including financial aid.

## Acceptance of Admission and Award Offers

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 support (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by a prospective or enrolled graduate student completes an agreement that both student and graduate school expect to honor. In that context, the conditions affecting such offers and their acceptance must be defined carefully and understood by all parties.

Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines

for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, 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 or a link to the URL should accompany every scholarship, fellowship, traineeship, and assistantship offer.

Students to whom admission and financial awards are offered in March are requested to give notice in writing of the acceptance or rejection of their offers no later than April 15. Students to whom offers are made after April 1 are asked to reply within two weeks of receipt of the notice. Offers can be withdrawn if the deadline passes without any response from the student. Requests to extend deadlines or to reinstate withdrawn offers should be addressed to the degree program, which must endorse them before forwarding them to the Graduate School Dean for final approval.

## Policies

***For all Graduate School policies, please visit our Policies and Guides page (<http://graduateschool.wustl.edu/policies-and-guides>). This page contains these two policies of the Graduate School:***

**Academic and Professional Integrity Policy for Graduate Students** (p. 22)

- I. Introduction (p. 22)
- II. Offenses Which Constitute Violations of Academic and Professional Integrity (p. 22)
- III. Procedures for Dealing with Cases of Academic and Professional Integrity Violations (p. 25)

**Policy on Probation and Dismissal for Academic Reasons** (p. 28)

- Guidelines for Academic Probation and Dismissal (p. 28)
- Appeal Procedures (p. 29)

## Academic and Professional Integrity Policy for Graduate Students

This document on academic and professional integrity applies to graduate students in the Graduate School of Arts & Sciences ("GSAS"): Master's and PhD students in Arts & Sciences programs, all PhD students on the Danforth & Medical campuses, including those home-based in another School (Engineering, Social Work, Medicine, Business), and dual degree students when one of the degree programs resides in GSAS. Originally adopted by the Graduate Council of the Faculty of Arts & Sciences in 1991, the current version underwent major review and revision and was approved by the Graduate Council in April 2012.

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 regrettably be cases where misconduct, rather than minor procedural error, appears to be at issue, and it is for such cases that guidelines detailed in this document have been established. Both faculty and students should familiarize themselves with these guidelines, for they will be followed in all cases of alleged academic misconduct.

### I. Introduction

Academic integrity is of paramount importance at every educational institution. The university has an obligation to provide an atmosphere based on scrupulous adherence to the rules of honesty. This climate of impeccable integrity must encompass every aspect of academic activity. The university's role within the greater culture as provider of new knowledge and educator of future leaders demands no less.

The integrity code governing all teachers, scholars, and researchers is severe. Even a single allegation of impropriety, unless refuted to the satisfaction of peers, can tarnish a reputation and block career development. An egregious violation could abruptly end a career in disgrace. Ignorance of the rules of academic conduct is normally not regarded as a mitigating factor.

Washington University promotes the highest standards in academic scholarship. The Graduate School of Arts & Sciences, in providing a springboard for its students into careers in scholarship and research, does not tolerate any form of laxity in academic integrity. Term papers, seminar presentations, laboratory experiments, homework problems, and examinations, to say nothing of published work, conference papers, and theses or dissertations, must be regarded as training grounds not only in the acquisition of knowledge but in scholarly ethics.

No instance of proven academic dishonesty can be ignored, even if the offender claims to be unaware that his or her actions constitute an offense. The sole difference between the academic integrity code for graduate students and that for professionals is that student offenses are generally not publicly aired and that students may be permitted to continue their training if their transgressions are considered relatively minor or are considered to be adequately mitigated by circumstances. Findings of flagrant exhibitions of willful academic dishonesty, however, must result in expulsion from the Graduate School.

It is assumed by the Graduate School of Arts & Sciences and the Graduate Council that all students entering the university are well versed in the principles of honesty. Graduate students are expected to demonstrate appropriate academic and professional conduct and to exhibit truthfulness and candor in all aspects of their interactions with the university community. Thus, knowingly furnishing false information to the university, or to someone acting on its behalf, will be considered academic misconduct in violation of this policy. Students are strongly urged to study this document carefully and review with home departments any area in which they have questions.

## II. Offenses Which Constitute Violations of Academic and Professional Integrity

### A. Academic Integrity Violations

The following offenses, or attempts to commit these offenses, constitute violations of academic integrity:

#### 1. Plagiarism and other misappropriation of the work of another

Plagiarism is the willful or unintentional act of using, without proper acknowledgement, another person's or persons' words, ideas, results, methods, opinions, or concepts. It does not matter whether the appropriated information is published or unpublished; academic or nonacademic in content; or in the public or private domain. The act of claiming as one's own work any intellectual material created by another or others is wrong and will be treated by the Graduate School of Arts & Sciences as a serious violation of academic integrity.

To avoid plagiarism, students are expected to be attentive to proper methods of documentation and acknowledgement. To avoid even the suspicion of plagiarism, a student must always:

- Enclose every quotation in quotation marks, and acknowledge its source.
- Cite the source of every summary, paraphrase, abstraction or adaptation of material originally prepared by another person, and any factual data that is not considered common knowledge. Include the name of author, title of work, publication information, and page reference.

- Acknowledge material obtained from lectures, interviews, or other oral communication by citing the source (name of the speaker, the occasion, the place, and the date).
- Cite material from the Internet as if it were from a traditionally published source. Follow the citation style or requirements of the instructor for whom the work is produced.

Similar to standards governing preparation and publication of written works, there are standards that govern the creation and preparation of artistic, design and technical works and creations. It is a violation of academic integrity to represent another's artistic, design or technical work or creation, including unacknowledged or unauthorized use of proofs and codes, as one's own. It is recognized and understood that a student's work may often draw from previously published material and works for reference and inspiration, and the Graduate School encourages this type of exploration. However, student work claiming to be original, but which has been lifted without significant change from other sources, including magazines, the Internet, fellow students or colleagues, is unacceptable and will be treated as a violation of this policy.

## 2. Cheating

The use of deceit in the classroom or in the construction of materials related to the academic process is unacceptable. Such offenses include but are not restricted to copying someone else's answers during an examination or using or providing unapproved materials for an examination.

## 3. Copying Or Collaborating On Assignments Without Permission

When a student submits work with his or her name on it, this is a written statement that credit for the work belongs to that student alone. If the work was a product of collaboration, each student is expected to clearly acknowledge in writing all persons who contributed to the work.

If the instructor allows group work in some circumstances but not others, it is the student's responsibility to understand the degree of acceptable collaboration for each assignment, and to ask for clarification if necessary.

To avoid cheating or unauthorized collaboration, a student should never:

- Use, copy or paraphrase the results of another person's work and represent that work as his or her own, regardless of the circumstances.
- Refer to, study from, or copy archival files (e.g., old tests, homework, or back files) that were not approved by the instructor.

- Copy another's work or permit another student to copy his or her work.
- Submit work as a collaborative effort if he or she did not contribute a fair share of the effort.

## 4. Fabrication or Falsification of Documents, Data or Records

It is dishonest to fabricate, falsify or otherwise provide misleading data or other material presented in research papers, projects, publications, assignments and in any other academic and professional circumstances; to fabricate source material in a bibliography or "works cited" list; or to provide false information on a résumé or other document in connection with academic and professional efforts.

Examples of falsification include:

- Altering information on any exam or class assignment being submitted for a re-grade.
- Altering, omitting, or inventing data to submit as one's own findings. This includes copying data from another student to present as one's own; modifying data in a write-up; and providing data to another student to submit as his or her own.
- Improper adjustment or revision of data, gross negligence in collecting or analyzing data, deceptive selective reporting of data, or the deceptive omission of conflicting data.
- Publication of information that will knowingly mislead or deceive readers.
- Failure to give proper credit to collaborators, including joint authorship, if appropriate, or identification of persons as authors who have not contributed to the work.

## 5. Research Misconduct

It is a violation of this policy to engage in research misconduct or otherwise fail to adhere to the university's research policies and guidelines, which can be found at <http://research.wustl.edu>. Research misconduct includes but is not limited to failure to adhere to or to receive the approval required for work under research regulations of federal, state, local or university agencies or departments.

## 6. Obstruction of the Academic Activities of Another

Students are prohibited from obstructing or interfering with the scholarly research and academic activities of another individual. Examples include but are not limited to stealing, tampering with, damaging, or destroying research papers, data, supplies, equipment, designs, drawings, other products of research or academic work, or such other property of others that is related to academic endeavors, or impeding access to shared resources such as library

materials, studio materials, or computer software and hardware.

### 7. Abuse of Confidentiality

It is a violation of this policy for a graduate student to release information, ideas or data of others that were provided to the student with the expectation that the student would maintain such information, ideas or data as confidential. For example, a student may be exposed to or asked to participate in confidential grant proposals, review of manuscripts, or other applications for honors and awards that should be considered confidential and not disclosed to unauthorized persons.

### 8. Other Forms of Deceit, Dishonesty, or Inappropriate Conduct

Under no circumstances is it acceptable for a student to:

- Submit the same work, or essentially the same work, for more than one course without explicitly obtaining permission from all instructors. A student must disclose when a paper or project builds on work completed earlier in his or her academic career.
- Request an academic benefit based on false information or deception. This includes requesting an extension of time, a better grade, or a recommendation from an instructor.
- Misrepresent experience or ability. This includes providing false information concerning academic achievement or background in an area of study. For example, falsely reporting the substance of an internship, or omitting transcripts or other academic information on an application for admission or other university records.
- Steal, deface, or damage academic facilities or materials.
- Collaborate with other students planning or engaging in any form of academic or professional misconduct.
- Submit any academic work under someone else's name other than his or her own. This includes but is not limited to sitting for another person's exam; both parties will be held responsible.
- Publish or attempt to publish collaborative works without the permission of the other participants.
- In addition, any offense defined as academic misconduct within the Washington University Student Judicial Code may also constitute a violation of this policy.

### B. Professional Integrity Violations

Professional integrity violations consist of behavior that is inconsistent with ethical standards in the professional roles for which the student is being trained that are not covered by policies governing academic integrity. This may include the

student's performance in the role of researcher or scholar, teacher or mentor, supervisor, service-provider or colleague. Of particular note in this regard are behaviors that make the workplace hostile for colleagues, supervisors or subordinates. Graduate students are expected to adhere to ethical standards in a variety of work settings (e.g., offices, classrooms, clinics, and laboratories) within the explicit standards set by university policies. Being physically or verbally threatening, disruptive, abusive or hostile can make the workplace so unsafe or unpleasant that others cannot do their work. However, graduate education must take place in an environment in which free expression, free inquiry, intellectual honesty, and respect for the rights and dignity of others can be expected. Ethical standards of conduct should help ensure, not compromise, these features of the university environment.

Sources of the norms or standards to which graduate students can be held accountable (and charged under this policy if they fail to adhere to them) are as follows:

#### 1. State and Federal Laws

Graduate students, like all members of the university community, are expected to abide by all state and federal laws.

#### 2. Relevant University-Wide Policy Statements

Graduate students are responsible for being familiar with and are held accountable to the standards that are identified in university-wide policy statements and that apply to them, including but not limited to the university's Policy Against Sexual Harassment, Policy Against Discriminatory Harassment, the Non-Discrimination Statement, and the university Student Judicial Code, which can be found at <http://wustl.edu/policies>.

#### 3. Discipline-Specific Professional Standards of Conduct or Code of Ethics

Graduate students are expected to meet professional standards of conduct associated with their own disciplines and/or professions as articulated in formal codes of ethics. Such formal codes can include but are not limited to codes of professional conduct or statements on professional behavior that have been adopted by the student's department, program, school or college, as well as codes of ethics published by professional associations.

#### 4. Additional Forms of Professional Misconduct

In addition, graduate students can be held accountable for the following professionally relevant behaviors, which may or may not be identified as violations in other formal codes of conduct relevant to the student. With respect to the following behaviors, the appropriate academic leadership (e.g., dean or department chair), in consultation with department faculty, serves as the authority for whether a specific student behavior warrants review under this policy.

- Misrepresentation of one's credentials or status, or failure to correct others' inaccuracies or misrepresentation of one's credentials. This includes professional experience, paid or unpaid, including positions held; and relevant time frames and dates (e.g., the time frame in which a professional position was held, or the date on which a degree was earned).
- Unethical consulting activity, including misrepresentation of one's status, credentials, or level of expertise to secure a consulting assignment; and knowingly taking on a consulting assignment without the necessary knowledge or expertise. (Consultation should only be provided by individuals who have demonstrated knowledge, expertise, and competence related to the consultation. To avoid problems in this regard, graduate students are strongly encouraged to seek the advice of their faculty advisers or other appropriate members of the faculty before taking on a consulting assignment.)
- Unethical professional practice based on conflict of interest. This includes engaging in unethical professional behaviors to promote, benefit or protect one's self, family, friends, or business colleagues; and exploiting personal knowledge about an individual (e.g., personal life as well as political and religious views).
- Failure to protect confidential records, in accordance with relevant professional standards.
- Abuse of the peer review process. This includes the following:
  - a. simultaneous submission of a manuscript to more than one journal without approval from the respective editors
  - b. submission of previously published material without clarifying the extent of the previously published material to the editor
  - c. submitting a manuscript without the permission/agreement of all authors
  - d. judging a peer's work on other than professional grounds
  - e. serving as a peer reviewer despite conflict of interest (e.g., having a personal relationship with the author) or otherwise being knowingly unable to judge the merits of scholarly work without prejudice
  - f. trying to unduly influence a colleague's review of one's own work
- Other fraudulent behavior. This includes actions, taken individually or with other people that the appropriate dean believes to call into question the student's ability

to ethically and competently join the profession.

Specific examples include knowingly providing false information in one's professional role, embezzling funds, and misusing department or school resources.

- Aiding or abetting professional misconduct. Aiding or abetting any individual in the violation of any of the categories of professional misconduct outlined above shall itself be considered misconduct.
- Attempted professional misconduct. An attempt to commit professional misconduct may be treated as seriously as the completed act.
- Misrepresentation, abuse, or other seriously improper conduct in relation to instructors, students, colleagues, research subjects, clients, or other members of the university community.
- Participation in illegal activities, substance abuse, or other misconduct or misrepresentations in violation of university policies and procedures or state or federal laws.

### III. Procedures for Dealing with Cases of Academic and Professional Integrity Violations

#### A. Academic Integrity Violations (described under II A)

Individual faculty members, departments or students should not attempt to adjudicate allegations of academic integrity violations at the course or departmental level. Instead, in the interest of providing consistent, prompt consideration and resolution of allegations of academic integrity infractions, a formal complaint must be filed and 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.

#### B. Professional Integrity Violations (described under II B)

If violations of professional integrity violations are alleged by a faculty member, department, or student and a formal complaint is filed with the Graduate School of Arts & Sciences, the Associate Dean of the Graduate School of Arts & Sciences ("Associate Dean") may consult with the accused student's department, the university Judicial Administrator, and/or other appropriate university officials to determine whether such allegations or complaint will be handled on a departmental level, under the University Judicial Code, and/or the procedures of this Policy set forth below.

#### C. General Provisions

##### 1. Filing a Complaint

Formal complaints of academic or professional integrity violations must be filed in writing with the Associate Dean of the Graduate School of Arts & Sciences ("Associate Dean") by a faculty member, member of the administration or another student. All available substantiating evidence

shall be submitted with the formal complaint. If the charging party seeks to subsequently withdraw the formal complaint, the Associate Dean may decide to proceed with the complaint in order to preserve the interests of the Graduate School.

## **2. Confidentiality**

Individuals submitting information regarding such allegations or participating in any manner in the investigation or disciplinary process are reminded of the need for confidentiality regarding all matters of the alleged misconduct.

## **3. Further Investigation by Associate Dean**

The Associate Dean will consider the merits of the complaint and whether it appears to warrant further investigation. The Associate Dean may take further action, as necessary, to investigate the allegations, including consultation with the accused student's program director, adviser or other relevant faculty members, the charging party, witnesses, or other university administrators if appropriate.

4. Unless it is determined by the Associate Dean that extraordinary circumstances exist, the student will be permitted during the review process to attend class so long as the student does not pose a threat to himself or herself or others.

## **5. Consultation with Judicial Administrator**

The Associate Dean shall determine, and may consult with the university's Judicial Administrator in making such a determination, whether the alleged conduct, if true, could constitute misconduct under the Judicial Code. If the Associate Dean determines that the alleged misconduct constitutes misconduct under the Judicial Code, the Associate Dean may refer the matter to the university's Judicial Administrator.

## **6. Enrollment in Dual-Degree Programs or a GSAS Program Home-Based in Another School**

If a graduate student in the Graduate School of Arts & Sciences is enrolled in a GSAS program home-based in another School or is enrolled in a dual degree program, the Associate Dean may advise appropriate officials from all Schools involved. The Washington University Provost/ Executive Vice Chancellor for Academic Affairs 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.

## **7. Research Integrity Policy**

When the alleged violation of academic integrity occurs during the conduct of research, the Washington University Research Integrity Policy may take precedence. The Dean

of the Graduate School of Arts & Sciences, the Research Integrity Officer, and the Vice Chancellor for Research, or their designees, will confer to make this determination and advise the Graduate School Associate Dean. Copies of this policy may be obtained from the Research Office and online at: <http://wustl.edu/policies/research.html>.

## **8. Notice to Accused Student**

If the complaint warrants further investigation, the Associate Dean will notify the accused student of the alleged infraction, discuss the allegations, and review the hearing process, including the student's options to reply to the complaint.

## **9. Admission of Violation**

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

## **10. Refusal to participate or respond**

If the accused student refuses to respond to the charges or refuses to participate in the proceeding, the Associate Dean and/or the Academic Integrity Hearing Committee may interpret the accused student's lack of response or participation as an admission of the charges, and the Associate Dean and/or the Academic Integrity Hearing Committee may immediately proceed to impose sanctions against the accused student in accordance with this Policy.

11. The record of the review, including Hearing Proceedings if any, will be held confidentially in accordance with the law and university policy, with access restricted to the Associate Dean, Hearing Committee members, the student accused, and members of the WU administration involved in the proceedings or on appeal.

12. The Associate Dean, Hearing Committee if any, and Dean of the Graduate School may consider additional evidence of prior conduct, evidence as to the charged student's character, the student's academic record, or any other evidence which could assist in determining an appropriate sanction.

## **13. Composition of Academic and Professional Integrity Hearing Committee**

- **Chair of the Academic and Professional Integrity Hearing Committee:** The Chair of the Graduate Council Executive Committee will serve as Chair of the Academic and Professional Integrity Hearing Committee ("Chair").

- **Appointed Members:** The Academic and Professional Integrity Hearing Committee is composed of four members of the Graduate Council Executive Committee (two student and two faculty members) selected by the Chair. The Executive Committee is elected each year by the Graduate Council.
- **Ex-officio Members:** At the discretion of the Chair, membership may include, in *ex officio* capacity, the Associate Dean of GSAS, a representative of the Student Health Services, or an official from the graduate student's program if the student is home-based in another School. In addition, the Office of General Counsel may be present during a hearing to advise the Committee.
- **Recusal from participation and voting:** A voting member of the Committee should declare any potential conflicts of interest to the Committee, and the remaining Committee members will determine whether the member should be recused from discussion and voting.

#### 14. Hearing Process

- The Chair of the Academic and Professional Integrity Hearing Committee will convene a hearing where the accused student and the charging party will present evidence.
- Each party must present his or her case.
- Each party may be assisted by no more than two aides. These aides may be experts in the pertinent academic areas.
- In addition, the Committee may call witnesses at the suggestion of the accused student or the charging party.
- Upon notification of the hearing date, the accused student and the charging party will be issued advance notice of procedural rules governing the proceeding.

15. A list of expected aides, suggested witnesses, the name and title of accompanying individual, and copies of any documents expected to be presented, either in support of the complaint or in defense of the student charged, shall be provided to the Associate Dean no less than five (5) business days prior to the Committee meeting. Upon request and unless otherwise agreed upon, the student will have access to the documents to be presented no less than two (2) business days in advance of the meeting.

16. The student may present evidence on his or her behalf, subject to reasonable limitations as to amount, scope, and format, as determined by the Chair of the Committee.

17. The Chair of the Committee will rule on whether or not specific evidence or testimony will be considered. The

Committee has neither the advantages nor limitations inherent in a court of law.

18. The decision as to whether the student committed the alleged misconduct will be made solely on the basis of evidence and testimony presented at the meeting. Innocence of the student will be presumed. A Committee member must find in favor of the student unless the member is persuaded that it is more likely than not that the student engaged in the misconduct alleged.

19. The person who has submitted the complaint of misconduct may not serve as a member of Committee. He or she will be asked to present the complaint and information regarding the allegations and will then be excused.

#### 20. Deliberation and Finding

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

#### 21. Recommendation for Sanctions

Should the Committee find the accused student to have committed an integrity violation, 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 & Sciences.

#### 22. Review by Dean of Graduate School

The Dean of the Graduate School will review the Committee's findings and recommendations. In the instance of a finding that the accused student committed an integrity violation, the Dean will decide the appropriate penalty. The decision of the Dean is final with respect to all penalties except suspension or expulsion. The decision and other pertinent information will be communicated in writing to the accused student and charging party, as well as to the chair of the Academic Integrity Hearing Committee. Other individuals who serve in an administrative or advisory capacity will also be informed, on a "need to know" basis in compliance with FERPA regulations.

#### 23. Appeal

Students found guilty of an integrity breach 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 Provost/Executive Vice Chancellor for Academic Affairs. The appeal must be limited to the grounds that a

fair hearing was not provided, or that the sanction imposed was excessive. Such written appeal must clearly state the grounds for the appeal and must include all supporting information which the student desires to be considered as part of the appeal. Upon appeal, the decision of Provost/ Executive Vice Chancellor for Academic Affairs is final.

## Policy on Probation and Dismissal for Academic Reasons

This policy gives guidelines and procedures for probation and dismissal because of poor academic performance (Academic Dismissal) for students enrolled in PhD programs.

Academic Dismissal is distinct from withdrawal (initiated by the student), deactivation of a student's record by a failure to register, and dismissal or other sanctions associated with the Graduate School of Arts & Sciences (GSAS) Academic and Professional Integrity Policy or the university Student Judicial Code. Dismissals are recommended by the degree program and are not final until approved by the Dean of the GSAS.

Extant Graduate School policy addresses dismissal due to time limitations and immediate dismissal for extreme academic under-performance. Students enrolled in the GSAS normally are expected to maintain full-time continuous enrollment to their terminal degree. The maximum number of semesters of continuous enrollment is 18 (nine years). Students in PhD programs who have not completed their terminal degree and who have not withdrawn will be dismissed at the end of 18 semesters. An exception may be granted by the Dean of GSAS on request by the designated faculty graduate program director (in most departments this position is called the Director of Graduate Studies [DGS]) if the student is expected to complete their degree during a 10th year of enrollment. Enrollment for an 11th continuous year will not be allowed. Semesters on approved Leaves of Absence are not included on the enrollment clock.

Students may be dismissed immediately for extreme academic under-performance. Examples of extreme under-performance might be two grades of C or below in one semester or three unfinished courses (I, X or N) in one semester. Students who encounter personal situations that contribute to academic under-performance during a semester should be informed of the option to request a Leave of Absence rather than continuing enrollment with poor performance. The ability to complete TA responsibilities is not a sufficient basis for remaining enrolled.

Most academic difficulties are not of the severity associated with immediate dismissal. The Graduate School's explicit criteria for maintaining minimal standards for satisfactory academic progress are: (1) a cumulative GPA of 3.0 or greater, (2) no more than 9 credits of incomplete (I), final examination missed (X) and/ or not yet submitted (N) on the transcript at any one time, and (3) submission of a dissertation proposal, in the form of a completed *Title, Scope, and Procedure Form*, before beginning the ninth

semester (fifth year) of continuous enrollment. A program may add requirements for good standing, such as the completion of comprehensive or qualifying examinations by a certain time, but may not relax the GSAS-wide requirements. The faculty also are responsible for evaluating the ability of the student to identify and undertake an original scholarly project at the level of excellence expected for a Washington University PhD, as well as whether the student is making timely progress toward completion of the degree. The program may place a high value on the quality of performance in TA assignments and/or other professional responsibilities. The judgment of the faculty on these issues can lead to Academic Dismissal for students who meet other criteria for good academic standing. Departments are expected to maintain written guidelines that help students understand the major categories of expectations for satisfactory progress. Such guidelines should be provided to students at the beginning of their academic program, and reviewed with students on a regular basis.

## Guidelines for Academic Probation and Dismissal

Except for circumstances justifying immediate dismissal, a student cannot be dismissed on the basis of academic performance without the opportunity to return to good standing during an identified period of probation. The purpose of probation is to: (1) explicitly warn the student of his or her status, (2) provide the student with clear guidelines of the performance that will be necessary to return to good standing, and (3) provide the student with reasonable time to meet these expectations. To meet these objectives, probation normally should be designated for a minimum of three months. When the probation criteria involve course work, then the probation period would normally correspond to the semester duration. A student on probation must receive a detailed letter from the DGS stating the reasons for the probation and explicitly identifying the steps necessary for the student to return to good standing by the end of the probation period. A copy of this letter should be sent to the Dean of GSAS. If a student does not meet all criteria for good academic standing but the department does *not* wish to place the student on probation, an appeal for this exception can be made to the Dean of GSAS by the DGS or designated departmental faculty representative.

At the end of a first probation, the student may be: (1) returned to good standing, (2) placed on a second consecutive probation, which generally will be for a full semester, or (3) dismissed from the program. A second consecutive probation must be accompanied by a new letter identifying the steps required to return to good standing. While the purpose of the probationary period is to provide the student with time to improve, the decision of the program at the *end* of a probationary period could involve immediate notification of dismissal.

At the end of a second continuous probation, the student will be either returned to good standing or dismissed. A third probation

will be allowed only if it is not continuous. A fourth probation will not be allowed. A student whose performance would result in a fourth probation will be dismissed immediately. A leave of absence cannot be used by a student to delay or nullify the consequences of a third consecutive or fourth probation.

Each program must have a standard procedure (such as a graduate advisory committee) to manage decisions regarding placement on probation, removal from probation, recommendations for dismissal after a probationary period, and recommendations for immediate dismissal due to extreme under-performance. The procedure for managing such decisions must be applied to all students in the program and cannot be managed solely by an individual faculty member, including the student's research mentor, though the input provided by the research mentor may play a key role in the process.

Stipend support should continue during a probationary period unless the student is failing to meet the basic expectations of his or her position (e.g., a student who holds a TA position repeatedly misses the class or section to which the TA is assigned or a student who holds an RA position is repeatedly absent from the lab and fails to carry out lab duties). If a program or school decides to suspend stipend support under these circumstances, the student must be given a minimum of two weeks' notice prior to withholding such support. If the student's performance improves and she or he begins meeting the basic expectations of the position, stipend support should resume at that time. During all probationary semesters, tuition remission will remain as offered at initial enrollment.

### **Notification Procedures for Academic Probation**

1. The explanation of academic performance issues leading to probation should be specific (low GPA, failed exam, etc.) and contain a clear statement of what must be done within a specified period of time in order for the student to return to good standing. This includes probation associated with faculty judgments of research potential, timely progress toward the degree, teaching performance or professional responsibilities. The expectations will be consistent with those held for all students in the program. They must be communicated in writing, accompanied by the opportunity to meet with the DGS or designated departmental faculty representatives for a clarifying discussion, and copied to the Dean of GSAS.
2. If the student does satisfactorily meet the requirements of the probation, a written notice of reinstatement, including the date that the student has returned to good standing, will be provided to the student. Students may be reinstated before the end of the probation period if they have met the requirements for reinstatement.
3. Copies of any letter or e-mail to the student, or summary notes of discussions with the student regarding the student's placement on probation should be placed in the student's file

in the Graduate School of Arts & Sciences, which the student has the right to review.

### **Notification Procedures for Academic Dismissal**

1. If the student does not meet the requirements of the probation by the specified time and the program recommends dismissal, the program will send a request for dismissal and a draft of the dismissal letter to the Dean of GSAS, along with copies of all previous communications and/or warnings. The draft dismissal letter will include the grounds for dismissal, the effective date of dismissal and advice to the student that voluntary withdrawal from the program is an option. All academic dismissals require approval by the Dean of GSAS.
2. If the student is an international student on a visa, the program should consult with the Office of International Students and Scholars prior to drafting the dismissal letter. It is often advisable for an international student to withdraw ahead of a dismissal to avoid an adverse impact on future entry to the U.S.

### **Appeal Procedures**

The appeal of probation or dismissal by a student should follow the guidelines for all GSAS Student Grievance Procedures, in that it should begin at the most local level. In cases of probation or dismissal, a student may appeal within 14 calendar days to the department chair or another designated faculty representative or committee beyond the DGS or graduate advisory committee, consistent with Department or Program procedures.

#### **Probation**

Appeals of probation end with the Chair of the department or program (i.e., placement on probation cannot be appealed to the Dean of GSAS). In cases where there is a perceived conflict of interest with the Chair or the DGS, another member of the department can be designated to address the appeal process for probation or dismissal.

#### **Dismissal**

For academic dismissal decisions, a graduate student enrolled in GSAS may submit a final appeal of his or her dismissal to the Dean of GSAS, as provided below. Appeal requests must be initiated at the appropriate level within 14 calendar days of formal notification of probation or dismissal, and appeals to the Dean must be made within 14 calendar days of a decision by the Chair of the Department to uphold a student's dismissal. Responses to appeals generally occur within the next 14 calendar days after the appeal is requested.

Stipend support is discontinued at the time the student is notified of dismissal. The student is not eligible to receive stipend support during an appeal of dismissal; however, if the appeal is upheld, the student is eligible for stipend support covering

the period of the dismissal appeal process. Students who have chosen to withdraw from their program or department (as opposed to taking an authorized leave) cannot appeal or seek reconsideration of this decision.

## Fields of Study

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## American Culture Studies

The graduate certificate in American Culture Studies (AMCS) enables doctoral students to develop multidisciplinary expertise and encourages them to bring that added competence to bear in dissertation research that, while satisfying the demands of their principal disciplines, is broad-based and informed by work from across the humanities and the social sciences.

AMCS brings together a community of graduate students and faculty with overlapping interests in American topics. Through formal and informal intellectual exchange, they share knowledge, methods, and ideas across the boundaries that define the traditional academic disciplines. This intellectual community promotes the give-and-take of ideas, making graduate study more stimulating, and graduate research more original and creative.

Students who satisfy certificate requirements will receive the graduate certificate in American Culture Studies along with the award of the PhD. This is one of several interdisciplinary certificates offered by the Graduate School of Arts & Sciences, intended as credentials of special competency. The certificate helps its holders build academic careers, including careers involving interdisciplinary teaching, and it helps them develop distinctive research profiles.

**Contact Person:** Jennifer Gallinat  
**Phone:** (314) 935-5569  
**E-mail:** gallinat@wustl.edu  
**Departmental website:** [http://  
americanculture.wustl.edu/  
academics/  
graduate\\_certificate.php](http://americanculture.wustl.edu/academics/graduate_certificate.php)

## Faculty

The American Culture Studies program is enriched by its diverse community of faculty, lecturers, students and staff. Please visit our AMCS Directory page (<http://amcs.wustl.edu/people>) for a description and list of our teaching and affiliated faculty and other important members of our community.

## Degree Requirements

### Requirements for students enrolled in the Certificate Program after April 2012:

The Graduate Certificate in American Culture Studies is awarded to students who complete the PhD in a department of the Graduate School of Arts & Sciences (GSAS) and who satisfy the following requirements:

- Complete 81 total hours of course work, which is 9 hours beyond the requirement for the PhD alone. The extra 9 hours are part of 15 total hours of AMCS course work that includes:
  - The core seminar (3 credits), Introduction to American Culture Studies (AMCS 645).
  - Multidisciplinary courses (6 credits): two graduate courses on American topics (400-level or above) specifically designed in explicitly multidisciplinary terms. These are sometimes team-taught by faculty representing two different departments. Courses satisfying this requirement will be determined in consultation with the graduate director.
  - Extradepartmental courses (6 credits): two graduate courses on American topics (400-level or above) based in fields that complement work in the home department, to be determined in consultation with the graduate director.
  - Routine consultation with an AMCS faculty adviser outside the home department, in addition to the student's principal PhD adviser.
  - Completion of a PhD dissertation in the home department, with the AMCS faculty adviser serving as one of the "outside" readers on the oral-defense committee.

The PhD Certificate Program features and requires the AMCS 645 Graduate Core Course, offered every other fall; two Multi-Disciplinary (MD) courses, which foreground explicit conversation between field-specific discourses and are often

team-taught; and two Extra-Disciplinary (ED) courses, which are methodologically substantive courses outside the student's home department.

The PhD Certificate Program also gives students the opportunity to participate in Professionalization Projects, which are AMCS-mentored and funded projects in which students interact with scholars in their fields outside Washington University (for example, an on-campus symposium in which outside scholars participate or a panel at the annual meeting of a major scholarly professional association), as well as AMCS teaching assistantships and AMCS teaching (where appropriate and with the approval of the AMCS Director of Graduate Studies, the dissertation adviser, the home department Director of Graduate Studies, and, in the case of the AMCS teaching assistantship, the course instructor).

Finally, PhD Certificate Students are expected to regularly attend and participate in the monthly Americanist Dinner Forum, a flagship AMCS event which stages cross-disciplinary conversations among Americanist faculty to probe productive nodes of shared concern.

For more information about Program Activities and Requirements, please visit our webpage: [http://  
americanculture.wustl.edu/academics/graduate\\_certificate.php](http://americanculture.wustl.edu/academics/graduate_certificate.php)

## Anthropology

The graduate program in Anthropology at Washington University is a PhD program designed to train scholars and researchers who study the human condition through time and across cultures. Our graduates apply these skills to academics, business, government, and non-governmental jobs and careers. While candidates may receive an AM degree during the course of their study, the department does not admit students seeking a terminal master's degree. The anthropology department has a strong tradition of graduate student satisfaction and close mentoring by faculty advisers. In addition, graduates of the Washington University Anthropology PhD program have a solid history of placement in highly desirable academic and non-academic positions.

The department has a strong three-field approach with active programs in Archaeology, Sociocultural Anthropology, and Physical Anthropology. Program strengths in Archaeology include the origins of agriculture and pastoralism; paleoethnobotany; zooarchaeology; geoarchaeology, landscape archaeology, and environmental archaeology. Sociocultural Anthropology foci include politics, pluralism, and religion; indigenous political movements; the politics of gender and sexuality; fertility and population; global health and the environment, and medical anthropology. Program strengths in Physical Anthropology include human and primate evolution; the ecology and conservation of modern primates; human physiology; quantitative studies of morphology and genetics; and human life history.

All students are required to take an introductory course in Social Theory and Anthropology, along with at least two courses in subdisciplines other than their own area of specialty. Each of the three major subfields has specific requirements in addition to those of the university and department. Students will be evaluated during their second year and are required to submit written work (original research or review papers) for committee members and departmental faculty to evaluate. To advance to PhD candidacy, students defend their written doctoral research proposal. Depending on the research project, students may also be required to demonstrate competence in a written or spoken language or in a technical skill. Additionally, the anthropology department requires students to attend teaching workshops and professional conferences, to serve as a Teaching Assistant, and to teach their own course(s) independently.

Students are expected to receive their AM degree no later than their fourth semester of enrollment and should advance to PhD candidacy no later than their sixth semester. By the end of the sixth year, students should have defended their dissertation and met all teaching requirements.

## Contact Information

**Email:** Fiona Marshall, fmarshall@wustl.edu or Kirsten Jacobsen, kjacobsen@wustl.edu or Lauren Valle, lavallo@wustl.edu

**Phone:** (314) 935-5181 or (314) 935-7770 or (314) 935-5252

**Departmental website:** <http://anthropology.artsci.wustl.edu/graduate>

## Chair

### T. R. Kidder

Edward S. and Tedi Macias Professor in Arts & Sciences  
PhD, Harvard University

## Endowed Professors

### John Baugh

Margaret Bush Wilson Professor in Arts & Sciences  
PhD, University of Pennsylvania  
(African and African-American Studies)

### John R. Bowen

Dunbar-Van Cleve Professor in Arts & Sciences  
PhD, University of Chicago

### Pascal R. Boyer

Henry Luce Professor of Collective and Individual Memory  
PhD, University of Paris–Nanterre

### Fiona Marshall

James W. and Jean L. Davis Professor in Arts & Sciences  
PhD, University of California, Berkeley

### Richard J. Smith

Ralph E. Morrow Distinguished University Professor  
PhD, Yale University

### Erik Trinkaus

Mary Tileston Hemenway Professor in Arts & Sciences  
PhD, University of Pennsylvania

### Lewis Wall

Selina Okin Kim Conner Professor in Arts & Sciences  
MD, University of Kansas  
DPhil, Oxford University

### James V. Wertsch

Marshall S. Snow Professor in Arts & Sciences  
PhD, University of Chicago

## Professors

### Lois Beck

PhD, University of Chicago

### David L. Browman

PhD, Harvard University

### Glenn C. Conroy

PhD, Yale University

### David Freidel

PhD, Harvard University

### Gayle J. Fritz

PhD, University of North Carolina at Chapel Hill

### Jane Phillips-Conroy

PhD, New York University

### Carolyn Sargent

PhD, Michigan State University

### Glenn D. Stone

PhD, University of Arizona

### David Strait

PhD, State University of New York–Stony Brook

### Robert W. Sussman

PhD, Duke University

## Associate Professors

### Peter Benson

PhD, Harvard University

### Geoff Childs

PhD, Indiana University

### Michael Frachetti

PhD, University of Pennsylvania

### Bret D. Gustafson

PhD, Harvard University

### Rebecca J. Lester

PhD, University of California, San Diego

**Shanti A. Parikh**  
PhD, Yale University

**Crickette Sanz**  
PhD, Washington University

**Bradley P. Stoner**  
MD, PhD, Indiana University

## Assistant Professors

**Talia Dan-Cohen**  
PhD, Princeton University

**Xinyi Liu**  
PhD, University of Cambridge

**Amanda D. Melin**  
PhD, University of Calgary

**Elizabeth A. Quinn**  
PhD, Northwestern University

**Priscilla Song**  
PhD, Harvard University

**Kedron Thomas**  
PhD, Harvard University

## Senior Lecturer

**John Kelly**  
PhD, University of Wisconsin–Madison

## Adjunct Associate Professors

**Carolyn Lesorogol**  
PhD, Washington University

**M. Priscilla Stone**  
PhD, University of Arizona

## Professors Emeriti

**Robert L. Canfield**  
PhD, University of Michigan

**Pedro C. Cavalcanti**  
PhD, University of Warsaw

**James M. Cheverud**  
PhD, University of Wisconsin–Madison

**G. Edward Montgomery**  
PhD, Columbia University

**Patty Jo Watson**  
Edward Mallinckrodt Distinguished University Professor Emerita  
PhD, University of Chicago

## Degree Requirements

### Departmental Requirements and Graduate Student Evaluation Procedures

These are the general requirements of the Department of Anthropology. Each subdiscipline also has its own additional guidelines and requirements. All students in the PhD program are expected to satisfy the academic performance requirements of the Graduate School of Arts & Sciences, which can be found in The Graduate School Bulletin General Requirements (p. 8) section. Similarly, all subdisciplinary requirements are in addition to those set out here for the department as a whole.

Student progress is monitored by the entire faculty until he or she is formally admitted to the doctoral program (usually by the end of the fourth semester). Up until that point, the entire faculty vote upon decisions regarding the students evaluation and fulfillment of requirements. From the point at which students are formally admitted to the doctoral program, progress is evaluated by their committee, which will always consist of a minimum of three full-time permanent members of the anthropology faculty. This committee has authority to set specific PhD candidacy requirements for the student. The committee also recommends to the chair that a student be advanced to PhD candidacy.

### Universal Departmental Requirements

#### AM Degree

1. **Theory Requirement** (Anthro 472 Social Theory and Anthropology). All students are required to take Anthropology 472 in their first year. Under special circumstances this requirement may be delayed or waived by petitioning the entire departmental faculty.

2. **Two Subdisciplinary Course Requirements.** All students must complete at least one course taught by a faculty member of the anthropology department in each of the two subdisciplines other than their own; Anthropology 472 may satisfy the sociocultural requirement. Students with good cause to substitute prior extensive course work in the subdiscipline, especially in the context of a master's degree at another university, for one or both of the other subdisciplinary requirements, may petition the relevant subdisciplinary faculty to do so.

3. **Courses with Six Faculty.** All graduate students are required to have had courses with at least six different departmental faculty members. Team-taught courses may count for both faculty members.

4. **Credit Hours.** The anthropology department requires 36 credit hours for the award of an AM degree without thesis; 24 credit hours are required for an AM degree with thesis.

5. **Petition for the Award of the Master's Degree.** Once a student has completed all requirements for the AM degree, the student and his or her adviser submit a petition to the chair; the chair circulates the petition to the entire faculty and forwards it to the graduate school. This petition should include documentation of satisfactory completion of all the graduate school requirements (including cumulative credits, thesis if one was done, and grade point average), the four requirements listed above (1-4), as well as any special requirements set by the student's subdiscipline (see the relevant subdisciplinary requirements: Archaeology, Physical, Sociocultural). Sample petitions are available in the academic coordinator's office.

## PhD Degree

All AM degree requirements are also requirements for doctoral candidacy whether the student actually receives the AM degree or not. Continuation for the PhD involves being advanced to doctoral candidacy.

### 1. Student-Specific Requirements for Doctoral Candidacy.

Students may be asked by their committees to fulfill additional requirements, directly relevant to their doctoral dissertation research, prior to admission to candidacy. These may include a foreign language or specialized training outside of the anthropology department in other areas such as statistics, computer programming, or laboratory techniques. Students will be formally notified by their committees of such additional requirements.

2. **Defense of the Doctoral Proposal.** All students must defend a doctoral proposal prior to admission to PhD candidacy.

Proposals must be defended before a faculty committee consisting of an adviser and at least two other permanent members of the anthropology faculty.

3. **Petition for Admission to Doctoral Candidacy.** Once a student's doctoral proposal has been successfully defended, and all other requirements set by the graduate school, anthropology department, subdiscipline, and the student's committee have been met, the student and adviser should submit a petition to the chair for advancement to candidacy; the chair will then inform the entire faculty and forward the petition to the graduate school. Petitions should be in the form of a memorandum explaining how all of the requirements were satisfied. Sample petitions are available in the academic coordinator's office.

4. **Teaching Requirement.** Students entering in fall 2010 or after must fulfill the following teaching requirements:

- Attendance at five Teaching Center or Anthropology Department Teaching/Professional workshops
- The mandatory campus-wide TA Orientation counts as one workshop toward this fulfillment
- Four professional presentations (at professional conferences or formal talks in the department or elsewhere on campus)

- Participation as a Teaching Assistant in at least one course taught by an anthropology department faculty member
- Teaching a course at Washington University, University College, or another accredited institution (or demonstration of equivalent experience by petition to the Graduate Committee of the Department)
- Meet with the Department Tutor at least twice (in second and third year)

Students entering the program in fall 2007, 2008, 2009 will have the option of following the previous system (14 units of basic teaching; 4 units of advanced teaching, such as presenting papers at professional meetings) or the new system outlined above.

5. **The Doctoral Dissertation.** The doctoral dissertation must constitute an integrated, coherent original work, whose parts are logically connected to each other. Normally, the doctoral dissertation consists of a sequence of integrated chapters that introduce the dissertation research, provide the background and the methods for the research, present and interpret the results, and then tie the various portions of the dissertation together in a concluding chapter, with appropriate citations.

In this context, it may be appropriate for the dissertation to consist in part of research articles that have been written (and may be published) by the graduate student during the course of the doctoral research. Whether this dissertation format is appropriate for a given dissertation (within a subfield that accepts such a dissertation) needs to be determined *a priori* by the student and her or his doctoral committee. Should it be deemed appropriate, it must have an introductory chapter that provides the theme and core questions of the dissertation research and that explains the relationship(s) between the constituent chapters and parts, and it must also have a concluding chapter that brings together the information and ideas expressed in the thesis, relates them to the introduction, and shows how they constitute a coherent whole. See "Minimal Requirements for Dissertations" ([http://graduateschool.wustl.edu/files/graduate/Doctoral\\_Dissertation\\_Guide.pdf](http://graduateschool.wustl.edu/files/graduate/Doctoral_Dissertation_Guide.pdf)) for the GSAS requirements regarding a dissertation that includes previously written materials.

## Miscellaneous

1. **Four-Year Milestone — Filing Notice of Title, Scope, and Procedure of Dissertation Form.** At the end of their fourth year of full-time study, students are expected to have completed all the PhD requirements except for the dissertation. Students who cannot identify three faculty members who are willing to serve on their committee are not considered to be making satisfactory academic progress. Students in their fourth year of full-time study are required to submit the "Notice of Title, Scope, and Procedure of Dissertation" form to the graduate school by the beginning of the fifth year of full-time enrollment in the Graduate School.

**2. Changing Academic Advisers and Committees.** Students may change advisers and committee members at any time in their graduate career by finding new faculty members willing to take on such duties and by informing the chair of the department in writing. Any faculty member who opposes such changes may raise objections with the faculty committee responsible for the oversight of the status and progress of students.

## Specific Subfield Requirements

Please visit the following websites for more information regarding specific subfield requirements:

Archaeology: <http://anthropology.artsci.wustl.edu/graduate/archaeology>

Physical Anthropology: <http://anthropology.artsci.wustl.edu/graduate/physical>

Sociocultural Anthropology: <http://anthropology.artsci.wustl.edu/graduate/sociocultural>

## Procedures for Probation and Dismissal for Academic Reasons

The following describes how the department implements the Graduate School of Arts & Sciences Policy on Probation and Dismissal for Academic Reasons. Visit <http://graduateschool.wustl.edu/policy-probation-and-dismissal-academic-reasons> for more information.

Academic performance of all PhD students is reviewed on an annual basis by the department faculty. The Department has designated the Graduate Advisory Committee (the Committee of Three) to manage *decisions regarding placement on probation, removal from probation, recommendations for dismissal after a probationary period, and recommendations for immediate dismissal due to extreme underperformance.*

The Graduate Advisory Committee is chaired by the Director of Graduate Studies (DGS) and includes two other faculty members, with a representative from each of the subdisciplines: Archaeology, Physical Anthropology, and Sociocultural Anthropology. If it is determined by a vote of the majority of the Graduate Advisory Committee that the student is not satisfactorily meeting the academic requirements of the program based on the above criteria, the Graduate Advisory Committee will consider whether the student should be placed on probation or, if extreme underperformance warrants, immediate dismissal from the program, in accordance with the GSAS Policy on Probation and Dismissal for Academic Reasons. Normally, a probationary period would be no less than three months and, where probation criteria involve course work, the probationary period will normally consist of one semester. However, there may be circumstances in which a student may be placed on probation for less than three months.

The student will be notified of the Graduate Advisory Committee decision in writing, including an explanation of academic performance issues leading to probation or immediate dismissal

and, if applicable, any requirements for what must be done within a specified period of time during the probationary period in order for the student to return to good standing. The written probation letter should generally be accompanied by the opportunity for the student to meet with the DGS or designated departmental faculty representatives for clarifying discussion(s), and copied to the Dean of GSAS.

All students on probationary status will be reviewed by the Graduate Advisory Committee after each semester to determine whether the student should (a) be removed from probation and returned to good standing; (b) continue on probation; or (c) be dismissed from the program. The student will be notified of the decision of the Graduate Advisory Committee in writing.

If a student is dismissed from the program, the student will be notified in writing and will have the opportunity to appeal such dismissal in accordance with the GSAS Policy on Probation and Dismissal.

## Art History and Archaeology

The department offers the degrees of Master of Arts and Doctor of Philosophy. Particular areas of strength include ancient art, European art of the Renaissance and early modern periods, Asian art, and modern and contemporary art of Europe and the Americas. Students with degrees from the department go on to positions in colleges, universities and art museums, or to pursue further graduate study.

Applicants for admission 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 classics, history, literature, anthropology, and Asian studies.

During the first semester, every student must demonstrate a reading knowledge of French, German, Italian, or Spanish (for Western art history) or Chinese or Japanese (for Asian art history). Candidates for the PhD are required to demonstrate reading proficiency in at least two foreign languages, depending on the requirements of the field.

The graduate seminar L01-510, Methods in Art History, is required of all graduate students. Students work out an individualized program of study in consultation with the Director of Graduate Studies and the faculty within their area of interest. Upon completion of 30 hours of course work, AM students may write a thesis, normally for 6 credit hours, supervised by a member of the faculty; or take a cumulative written exam based on their course work, also normally for 6 credit hours. Either thesis or exam is followed by an oral defense.

Students with a master's degree earned elsewhere may apply directly to the PhD program. Applicants without a master's degree may apply either for a terminal AM or for the AM/PhD. Students completing AM requirements at Washington University

must apply in writing to the faculty for formal admission to the PhD program. Each candidate's studies are supervised by a Research Advisory Committee, a core group of three members of the faculty.

PhD students are expected to gain teaching experience within the department (as teaching assistants or instructors) as part of their professional preparation. After 60 hours of course work, a student takes a comprehensive PhD qualifying exam, which could follow either a written or an oral model. A final oral defense is held following successful completion of the dissertation.

**Phone:** (314) 935-5270  
**Departmental website:** <http://arthistory.artsci.wustl.edu>

## Chair

**Elizabeth C. Childs**  
Etta and Mark Steinberg Professor of Art History  
PhD, Columbia University

## Endowed Professor

**William E. Wallace**  
Barbara Murphy Bryant Distinguished Professor of Art History  
PhD, Columbia University

## Professor

**Angela Miller**  
PhD, Yale University

## Associate Professor

**John Klein**  
PhD, Columbia University

## Assistant Professors

**Marisa Bass**  
PhD, Harvard University

**Nathaniel Jones**  
PhD, Yale University

**Kristina Kleutghen**  
David W. Mesker Career Development Professor  
PhD, Harvard University

**Ila Sheren**  
PhD, Massachusetts Institute of Technology

## Affiliated Faculty

**David Freidel**  
Professor of Archaeology, Department of Anthropology  
PhD, Harvard University

**Eric Mumford**  
Rebecca & John Voyles Professor of Architecture  
PhD, Princeton University

## Professors Emeriti

**Sarantis Symeonoglou**  
PhD, Columbia University

**Mark S. Weil**  
E. Desmond Lee Professor Emeritus  
PhD, Columbia University

## Affiliated Curators, Mildred Lane Kemper Art Museum, Washington University

**Sabine Eckmann**  
Director and Chief Curator  
PhD, University of Erlangen–Nürnberg

**Meredith Malone**  
Associate Curator  
PhD, University of Pennsylvania

## Affiliated Curators and Directors, Saint Louis Art Museum

**Brent Benjamin**  
Director  
MA, Williams College

**Nichole Bridges**  
PhD, University of Wisconsin–Madison

**Lisa Cakmak**  
PhD, University of Michigan

**David Conradsen**  
MA, University of Delaware

**Phillip Hu**  
MA, Institute of Fine Arts, New York University

**Simon Kelly**  
PhD, Oxford University

**Eric Lutz**  
PhD, University of California, Santa Barbara

**Judith Mann**  
PhD, Washington University

**Elizabeth Wyckoff**  
PhD, Columbia University

## Guest Scholar, Pulitzer Foundation

**Tamara Schenkenberg**  
PhD, University of Wisconsin–Madison

## Degree Requirements

The general outlines of the PhD degree in the Department of Art History and Archaeology adhere to the requirements of the Graduate School of Arts & Sciences. To earn a PhD at Washington University, a student must complete 72 semester

hours, maintain satisfactory academic progress, pass certain examinations, fulfill residence and teaching requirements, and write, defend, and submit a dissertation. For the Graduate School's guidelines for doctoral dissertations, visit their Policies & Guides page.

We offer admission to an AM/PhD track in which a rigorous evaluation in the second year determines formal admission to PhD candidacy. Students completing an AM degree at another university may apply directly to our PhD program. We also, on occasion, accept applications for a terminal AM degree. If you are not certain about which of these options is right for you, please consult Professor John Klein, Director of Graduate Studies, at [jrklein@wustl.edu](mailto:jrklein@wustl.edu).

Students on the AM/PhD track in the Department of Art History and Archaeology complete an AM degree as the first 36 credit hours of the 72 credit hours earned at Washington University. Students with an AM degree in art history or classical archaeology from another university may apply to have 24 credit hours accepted toward the PhD requirements, per Washington University Graduate School regulations. Such students should normally have written an AM thesis that would be the equivalent of an AM thesis written in the Department of Art History and Archaeology.

The following describes the department's expectations for fulfilling PhD requirements at Washington University.

## Course Load

The Department of Art History and Archaeology defines a full-time course load as 9 hours per semester. This is less than the 12 hours required by some humanities departments, but the intensive reading and writing components of our seminars necessitates this smaller load. The smaller course load implies the deep and intensive study that gives our students their professional advantage. Students are generally expected to take at least two seminars per semester in their first three semesters. If necessary, graduate students may enroll in graduate foreign language courses for an additional 3 credit hours in any given semester, with the consent of their adviser. Language courses are taken as an overload, and they will not count toward graduate program requirements.

## Research papers during first two years

AM students are required to write at least four substantial research papers in the first two semesters, generally in seminars taken with at least two faculty members in the department.

Before February 1 of their first year in the program, students should give two papers to the department administrator to be placed in their departmental file. Having papers in students' files gives the faculty more material to evaluate their capabilities when conducting the annual review of continuing students in late February to early March.

## Language proficiency for the AM degree

In general, at the AM level, students beginning graduate study at Washington University are expected to arrive with appropriate proficiency in one language. We require students in western art to demonstrate reading proficiency in one modern foreign language (French, German, Italian or Spanish). Students in Asian art or archaeology must demonstrate reading proficiency in one modern Asian language. Students in classical art or archaeology are required to demonstrate reading knowledge of either Ancient Greek or Latin in addition to one modern language, to be determined in consultation with the student's adviser.

There are two ways to demonstrate this proficiency: 1) by passing a departmental examination verifying that a student is capable of using at least one relevant language in research. The department schedules these language exams early in the fall semester. If needed, the student may arrange a retest later during the fall semester or early in the spring semester; 2) by completing a two-semester sequence of "reading knowledge" courses with a grade of B+ or better. Any student embarking on this path should remember that a 9-hour course load in our department plus a 3-hour language course constitutes a very demanding schedule. Alternatively, students may take summer language courses, but such courses may be at their own expense. (Students may petition the Graduate School for tuition remission for one of the few summer reading and translation courses offered, but there is no promise of such remission.)

All PhD candidates in western art are required to demonstrate proficiency in two foreign languages by the end of their first year in the PhD program (normally, the sixth semester of graduate study). These languages will be determined in consultation with the student's major adviser.

For PhD students in Asian and classical art or archaeology, language requirements in addition to the AM-level requirements will be determined in consultation with the major adviser.

## Review of our AM students for PhD candidacy

Prior to completion of the AM degree, candidates will have fulfilled the AM foreign language proficiency requirement for their field, and will have submitted for their departmental file four seminar or other research papers completed for at least two different faculty members.

The following steps constitute our second-year review procedure for all students who are completing the AM degree in the department and are applying to continue in the PhD program:

1. By December 15 of the second AM year, candidates will submit a formal letter requesting admission to the PhD program, accompanied by a C.V. The letter will include a statement of the candidate's proposed areas of study and the faculty

member(s) who will act as mentors and a potential dissertation adviser. Candidates should request at least two letters of recommendation from tenure-track faculty members in the department in support of the application. Tenure-track faculty members from outside the department may be asked to provide additional letters. These letters must be received by December 15 of the second AM year.

2. Early in the following semester, tenure-track faculty in the department will vote on the candidate's application for admission to the PhD program.

3. Admission to PhD candidacy is contingent upon the successful completion of the AM degree, including the master's thesis. The thesis will be read by three faculty members and judged as evidence of the candidate's ability to conduct PhD-level work and promise to complete the PhD degree successfully.

### **Guidelines for graduate curriculum, major and minor areas, the PhD Comprehensive Exam, and the Dissertation Prospectus**

These guidelines apply to students entering in Fall 2009 and later.

#### **Required courses and program requirements**

1. L01 510, Graduate Seminar: Methods in Art History. 3 credit hours, graded with a letter grade. Frequency is biannual, to be taken by all first-year and second-year graduate students at the time of offering. New PhD students may be exempt if they have had a comparable course in another graduate program; this will be determined in consultation with the Director of Graduate Studies.

2. L01 650, PhD Comprehensive Exam Preparation. 6 credit hours, normally taken all at once, in the eighth semester; graded Satisfactory or Unsatisfactory.

3. L01 670, Dissertation Prospectus. 3 credit hours, normally taken at the same time as L01 650; graded Satisfactory or Unsatisfactory.

In the case of an Unsatisfactory grade in PhD Comprehensive Exam Preparation or Dissertation Prospectus, the student may, with the consent of the major adviser, repeat the course or courses the following semester, but with no guarantee of funding in that semester, since this will be deemed to be unsatisfactory progress and performance.

In conjunction with these courses the student will then:

- Present and successfully defend the dissertation prospectus before the faculty of the department
- Be examined in one major area

- Be examined in one minor area (or take exemption option specified below)

These three elements constitute the department's PhD comprehensive requirements. They will usually be fulfilled no later than the end of the eighth semester of graduate study at Washington University (or no later than the ninth semester of graduate study for our PhD students who received the AM degree elsewhere; see example schedules below).

In addition, every student is required by the Graduate School to complete the PhD Title, Scope and Procedure (TSP) Form, with the signatures of the three members of the student's Research Advisory Committee (the form is available at the Graduate School website). The TSP form should be submitted to the Graduate School as soon as possible once the student determines a dissertation topic and a Research Advisory Committee, consisting of the three Washington University tenure-track faculty members who will have primary responsibility for advising the student on the dissertation.

Only upon completion of these department and Graduate School requirements will a student be considered as ABD. Financial support from the Graduate School will not be guaranteed if a student is not ABD by the beginning of the ninth semester at Washington University (or by the end of the fifth semester at Washington University for our PhD students who received the AM degree elsewhere). Students are advised that faculty members are not obligated to provide graduate-level advising over the summer months.

#### **Comprehensive Exam**

The PhD Comprehensive Exam is intended to test a student's general knowledge as well as mastery of her or his area or areas of specialization. To this end, exams are tailored to the individual student, and can be both general and highly specific. Usually a student will have an approved dissertation topic before, or at about the same time as, taking the PhD Comprehensive Exam. As a general rule, students are advised not to devote more than one semester to studying for the exam.

Students will complete a department form to declare major and minor areas (or in the case of an exempted minor area, by which courses, with the grade record). The form should be signed by the major adviser, the second adviser, the minor adviser and the Director of Graduate Studies, and placed in the student's confidential department file no later than the beginning of the seventh semester. This form may be updated as necessary.

In following any of the models outlined below, a student will be examined by a PhD Comprehensive Exam Committee, normally consisting of three faculty members. The major adviser must be a tenure-track faculty member from within the department. Either (but not both) the second adviser in the major (see **Major area and exam** below) or the minor adviser may be a tenure-track Arts & Sciences faculty member from outside the department.

If the second adviser in the major and the minor adviser are the same person, she or he must be in the department.

#### **Two formats for the Comprehensive Exam: written or oral**

In agreement with the major adviser (who will normally be the dissertation adviser), each student will normally follow one of two formats for the PhD Comprehensive Exam:

1. A written exam to be followed within two weeks by an oral defense; **or**
2. An oral exam to be followed by a two-week written paper in the major area.

If the written format is chosen, the major (6 hours) and minor (3 hours) exams will be held in the department within a one-week period. The oral defense of the exams will also be held in the department. The major adviser, the second adviser, and the minor adviser will participate in the defense.

If the major and minor exams are oral, they will take place in the department and they will usually be held at the same time. The major adviser, the second adviser, and the minor adviser will participate. The two-week paper may be written anywhere. The two-week paper will be assessed by all three members of this Comprehensive Exam Committee.

The dissertation prospectus defense may be scheduled at a different time that semester.

#### **Major area and exam**

The major area will be intellectually ambitious and broad in scope, and will be defined in such a way as to ensure solid preparation for a wide array of teaching demands at the college and university level. Approved areas will be posted on the department website, but other major areas may be defined in consultation with both the Director of Graduate Studies and the major adviser.

In consultation with the major adviser, the student will invite one additional faculty member to serve as a second adviser to the major area exam. This second adviser may (but is not required to) participate in establishing the parameters and expectations for study of the major area. The second adviser must read the student's written responses and participate in the oral defense; or in the case of an oral comprehensive exam, the second adviser must participate. It is up to the major adviser and the second adviser to clearly define their roles and responsibilities for advising the student, and to communicate to the student all expectations during the period of preparation for the exam.

The major area will be tested either by a written exam over a six-hour period followed by an oral defense of the exam, or orally in an exam that may last up to two hours.

If the student chooses the oral exam in the major, this will be followed by a two-week research paper on a topic assigned by the major adviser. During the two weeks, the student has full access to all notes and research materials and to any library

and online resources. The purpose of the two-week paper is to demonstrate a high level of both writing and research skills on a focused topic in the major area.

#### **Minor area and exam; or exemption through appropriate related course work**

The minor area should be broad enough and sufficiently separate from the major area to constitute a distinct second teaching field when the student completes the degree program. Students are encouraged to determine a minor area at a significant chronological, geographic and/or theoretical remove from the broader area defined as the major area. The minor area will be determined in consultation with the minor adviser and must also be approved by the Director of Graduate Studies.

The minor area exam may be completed by one of the two exam models as above in the major — written exam (three hours) followed by oral defense; or oral exam (one hour) normally at the same time as the oral exam in the major (but there will be no written paper following an oral exam in the minor). The same exam model will usually be followed for both major and minor areas.

Alternatively, a student may request to exempt a minor area exam by completing three courses with a grade of A in each (at most one may be A-). When exempting a minor area exam in this way, the courses may be taken with more than one faculty member, but a single minor adviser should agree to review the request for exemption, and to assess whether or not the group of three courses constitutes a coherent and significant area of intellectual inquiry. A student whose request for exemption is accepted must also write a one-week essay on a topic in the minor area, in response to a question set by the minor adviser. During that week, the student has full access to his or her notes and to any library and online resources. The goal of this minor area qualifying essay will be to demonstrate a command of the field sufficient for teaching a college-level course. Students are encouraged to complete both the request to exempt the minor area and the minor area qualifying essay by the end of the semester following the third course taken to fulfill this exemption option.

#### **Dissertation prospectus**

The dissertation prospectus should be about 8-10 pages of text (2500-3000 words), plus notes and a short scholarly bibliography. The prospectus should typically include a state-of-the-field section; a statement of and justification of the proposed dissertation topic; and a preliminary research plan. In conjunction with the preparation of the prospectus the student should form a three-member Research Advisory Committee consisting of the dissertation adviser, who must be a tenure-track faculty member of the department, and two other tenure-track faculty members. The three members of the Research Advisory Committee will normally be the signatories on the PhD Title, Scope and Procedure form, which should be completed and filed. If appropriate to the student's research area, one of the

Research Advisory Committee members may be a tenure-track faculty member from another department or program in Arts & Sciences.

During the semester of enrollment in the Dissertation Prospectus course, each student will establish a schedule to turn in a draft prospectus, including state-of-the-field essay, statement of topic and bibliography, to the dissertation adviser. During that semester, the student will also defend the complete draft of the dissertation prospectus in a closed session to which only tenure-track faculty members of the department and any outside member of the Research Advisory Committee (if any) will be invited (at least four tenure-track department faculty members must be present at this defense). The three members of the Research Advisory Committee will be present at the defense, and all faculty members present will vote on the acceptability of the prospectus. A "pass" on the prospectus by majority vote means that it is accepted provisionally, subject to revisions that may be required by the Committee following the defense; the dissertation adviser will ensure that such revisions are carried out. In case of a failure on the defense, either by majority or tie vote, the entire Research Advisory Committee will be charged with evaluating a revised prospectus. A copy of the accepted dissertation prospectus will be placed in the student's confidential file. Once the prospectus has been accepted the student should complete and file the Dissertation Title, Scope and Procedure form with the Graduate School. A copy of this will be placed in the student's department file.

All parts of this comprehensive examination process — the major exam, the minor exam (or its exemption by appropriate courses), and the defense of a dissertation prospectus should, as stated above, be completed by the end of the eighth semester for a student in the PhD program (or the end of the ninth semester for a student who enters the PhD program with the AM degree from another university). This matches the Graduate School's requirement for fifth-year funding that a student be ABD (except for dissertation research credits needed to reach the minimum total of 72 credits).

### Schedule for AM/PhD students

A sample schedule for an AM/PhD student might look like this (graduate courses usually comprise 3 credit hours; therefore, 3 courses generally equals 9 credit hours):

#### Year 1

Fall	9 credits, including L01 510, Graduate Seminar: Methods in Art History, and another seminar
Spring	9 credits, including two seminars

#### Year 2

Fall	9 credits, including 3 credits of L01 500, Independent Study, for research on the AM thesis topic; also includes L01 510 if not taken in the first year
Spring	9 credits, including 6 credits of L01 590, Master's Research Instruction, and a seminar

#### Year 3

Fall	9 credits
Spring	9 credits

#### Year 4

Fall	9 credits, including 3 credits of L01 650, Comprehensive Exam Preparation Begin preparation for Comprehensive Exam
	Course work now completed with 63 credits
Spring	9 credits (3 credits L01 650, Comprehensive Exam Preparation; 3 credits L01 670, Dissertation Prospectus; 3 credits L01 690, Dissertation Research)
	Comprehensive Exam taken and Dissertation Prospectus submitted and defended this semester Determine Research Advisory Committee and file PhD Title, Scope and Procedure Form

#### Year 5

Fall	Start as ABD, having completed 72 credits Begin to apply for external grants for dissertation research
Spring	Continuing doctoral student status

#### Year 6

	External grant year or support from a Dissertation Fellowship from the Graduate School
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Continue to apply for external grants

### Students in the PhD program with an AM degree from another university

In the case of students who are admitted to the PhD program with an accepted AM degree from another university in hand, only 24 credits transfer in, so they will probably need to take more time than our own AM students to arrive at the requirement of 60 credits of general course work because they would begin their third year (i.e., their first post-AM year) with 24, not 36, credits. This does not affect the Graduate School's willingness to fund such students if they take slightly longer to complete PhD course requirements than students who have received the AM here, assuming they are otherwise making timely and satisfactory progress, because students who arrive with the AM degree from elsewhere are still eligible for at least five years of support from Washington University.

The typical schedule for a student coming to Washington University with the AM degree:

**Years 1 and 2 elsewhere:** 24 credits transfer to WU

#### Year 3

Fall	9 credits
Spring	9 credits

#### Year 4

Fall	9 credits
Spring	9 credits (6 credits of general course work, plus 3 credits of L01 650, Comprehensive Exam Preparation)

Course work now completed with 60 credits

#### Year 5

Fall	9 credits (3 credits L01 650, Comprehensive Exam Preparation; 3 credits L01 670, Dissertation Prospectus; 3 credits of L01 690, Dissertation Research)
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Comprehensive Exam taken and Dissertation Prospectus submitted and defended this semester

Determine Research Advisory Committee and file PhD Title, Scope and Procedure Form

Spring Start as ABD

3 credits of L01 690, Dissertation Research, to reach 72 credits (may take up to a maximum 12 credits of L01.690)

#### Year 6

Begin to apply for external grants for dissertation research

#### Year 7

Dissertation Fellowship or external grant support

### Schedule for students in the terminal AM degree program

AM students may elect either the thesis track or course-intensive (non-thesis) track. The thesis track is strongly recommended for students who aspire to continue for the PhD elsewhere, or who might eventually apply to the PhD program at Washington University. Course-intensive AM students will take a comprehensive examination late in their fourth semester.

#### 2-year outline for thesis track: 36 credits

##### Year 1

Fall	9 credits, including L01 510, Graduate Seminar: Methods in Art History, and another seminar
Spring	9 credits

##### Year 2

Fall	9 credits. One course will be Independent Study, devoted to researching the AM thesis topic; also includes L01 510 if not taken in the first year.
Spring	9 credits, including 6 credits of L01 590, Master's Research Instruction

Defense of the AM thesis before a committee of three regular faculty members constitutes the examination portion of the thesis-track AM degree.

#### 2-year outline for non-thesis track: 36 credits

##### Year 1

Fall	<b>9 credits, including L01 510, Graduate Seminar: Methods in Art History, and another seminar</b>
Spring	<b>9 credits</b>

#### Year 2

Fall	<b>9 credits</b>
Spring	<b>9 credits, including 6 credits of L01 585, Master's Exam Preparation</b>

All AM students are required to take L01 510, Graduate Seminar: Methods in Art History. This is currently offered every other fall semester. It will be offered next in Fall 2016.

There are no formal distribution requirements for course work toward the AM degree, but we encourage and advise students to consider the AM degree to reflect a broad, generalist preparation. Foreign language courses, if needed, may not be used to fulfill AM course requirements, but must be taken as an overload. Every student must either pass a departmental exam (translation and précis) in one foreign language or complete two semesters of a graduate reading course in a foreign language with a grade of B+ or better.

A maximum of one course per semester home-based in another department is permitted, subject to approval by the student's adviser and the Director of Graduate Studies as appropriate to the student's program of study.

## Biology & Biomedical Sciences

The Division of Biology & Biomedical Sciences at Washington University offers exceptional doctoral training at one of the nation's preeminent biomedical research centers. The Division includes 12 doctoral programs:

- Biochemistry
- Computational & Molecular Biophysics
- Computational & Systems Biology
- Developmental, Regenerative & Stem Cell Biology
- Evolution, Ecology & Population Biology
- Human & Statistical Genetics
- Immunology
- Molecular Cell Biology
- Molecular Genetics & Genomics
- Molecular Microbiology & Microbial Pathogenesis
- Neurosciences
- Plant & Microbial Biosciences

A collaborative, interdisciplinary approach to research and education is a hallmark of Washington University and the Division. As a university-wide consortium, the Division transcends departmental lines and removes

traditional boundaries of scientific fields. Faculty and graduate students regularly cross disciplines, devising novel questions and approaches that might otherwise go unexplored. The Division currently consists of 650 graduate students and 475 faculty members from 34 departments.

Washington University in St. Louis provides unique opportunities in translating basic science to practical application. The university's [BioMed 21](#) initiative provides \$300 million to support research that bridges the gap from bench to bedside; the project included construction of a 215,000 square-foot building dedicated to such research. In addition, the Division's associations with internationally prominent local institutions provide exciting opportunities: students in the biomedical sciences enrich their work with the clinical perspective of our outstanding medical school; students in plant, population, evolutionary and ecological sciences benefit from our close affiliation with the internationally renowned [Missouri Botanical Garden](#) and the [Danforth Plant Science Center](#).

To help prepare graduates for a career in academia, government, industry, or another field of their choice, educational opportunities are offered for skills development and career exploration. Through our Career Talks program, professionals from a variety of fields, such as biotech start-ups and patent law, provide presentations and Q & A sessions to students throughout the year. In addition, through partnerships with groups such as the Teaching Center, the BALSAs Group and ProSPER, students have additional opportunities to develop experiences relevant to future career goals.

**Phone:** (314) 362-3365 or (800) 852-9074

**E-mail:** [DBBS-info@wusm.wustl.edu](mailto:DBBS-info@wusm.wustl.edu)

**Departmental website:** <http://dbbs.wustl.edu>

## Program Information

### Biochemistry

*Areas of study:* metabolic regulation, signal transduction, receptors, membrane channels and transporters, membrane structure and dynamics, membrane trafficking, cholesterol and lipid metabolism, nucleic acid-protein structure interactions and function, DNA replication and repair, recombination, transcription, translation, enzyme kinetics, cancer biology, cell cycle regulation, apoptosis, cell motility, cytoskeleton, cell division, extracellular matrix, vascular biology, aging, senescence, telomere biology, heat-shock proteins, prion proteins, gene expression, RNA editing and binding proteins, microbial pathogenesis, parasitology, virology, drug design and metabolism, plant natural products, photosynthesis and plant energy production, molecular imaging in cells and tissues, carbohydrate metabolism, proteases  
Program Faculty Members

## Computational and Molecular Biophysics

*Areas of study:* structural biology, protein and nucleic acid kinetics and thermodynamics, single-molecule enzymology, protein design, nanoscience, ion channels and lipid membranes, computational biophysics  
Program Faculty Members

## Computational and Systems Biology

*Areas of study:* systems biology, genomics, sequence analysis, regulatory networks, synthetic biology, metagenomics, metabolomics, proteomics, single cell dynamics, high-throughput technology development, applied math and mathematical models of biological processes, computational biology, comparative genomics, personalized medicine, next generation sequencing and its applications, bioinformatics  
Program Faculty Members

## Developmental, Regenerative, and Stem Cell Biology

*Areas of study:* development, stem cell biology, regenerative biology, cell biology, genetics, cell signaling, the biology of cancer, epigenetics, circadian rhythms, systems biology  
Program Faculty Members

## Evolution, Ecology and Population Biology

*Areas of study:* population ecology, community ecology, plant and animal evolution; microbial evolution, evolution of behavior, phylogenetics, systematics, theoretical and experimental population genetics  
Program Faculty Members

## Human and Statistical Genetics

*Areas of study:* human genetics, statistical genetics, functional genomics, molecular genetics, Mendelian disease, complex disease, Mammalian genetics, systems biology  
Program Faculty Members

## Immunology

*Areas of Study:* cellular immunology, molecular immunology, lineage development, autoimmunity, cancer immunotherapy, transcription factors, epigenomics, mucosal immunity, innate immunity, bacterial, viral, and parasite immunity, immune evasion, antigen processing and presentation, dendritic cells, T cell signaling, antigen receptor diversification  
Program Faculty Members

## Molecular Cell Biology

*Areas of study:* cell adhesion, protein trafficking and organelle biogenesis, cell cycle, receptors, signal transduction, gene expression, metabolism, cytoskeleton and motility, membrane excitability, molecular basis of diseases  
Program Faculty Members

## Molecular Genetics and Genomics

*Areas of study:* genetics, genetic basis of disease, genomics, epigenetics, genetic engineering, genome editing, model organism genetics, development, cell biology, molecular biology, complex traits, bioinformatics, systems biology  
Program Faculty Members

## Molecular Microbiology and Microbial Pathogenesis

*Areas of study:* Host-pathogen interactions, cellular microbiology, molecular microbiology, microbial pathogenesis, pathogen discovery, emerging infectious diseases, microbial physiology, comparative genomics, microbiome and host interactions, virology, bacteriology, mycology, parasitology  
Program Faculty Members

## Neurosciences

*Areas of study:* neurobiology, neurology, functional imaging, behavior, cognition, computational neuroscience, electrophysiology, sensory systems, motor systems, neuroglia, neuronal development, learning, memory, language, synaptic plasticity, mind, consciousness, neurodegeneration, diseases of the nervous system, neuronal injury, clinical neuroscience, motor control, biological rhythms, connectivity mapping  
Program Faculty Members

## Plant and Microbial Biosciences

*Areas of study:* cell biology; development; physiology, signaling, development, metabolic regulation, photosynthesis, bioenergy, protein structure-function, synthetic biology, biogeochemistry, environmental microbiology, ecology, population genetics and molecular evolution  
Program Faculty Members

## Course of Study

Each program has its own steering committee, which provides students with guidance, addresses their needs, and monitors their progress. The committee also helps each student customize the course of study to match his or her individual

needs. Each of the 12 programs establishes its own degree requirements.

Across all the programs, the course of study consists of five distinct parts:

### Course Work

This generally requires two to five semesters and usually consists of four to nine courses in areas fundamental to the student's program. Students are expected to maintain a "B" average in graduate courses.

### Laboratory Rotations

Selecting a thesis adviser is the most important decision a student makes in graduate school. To help each student make an informed, thoughtful choice, the Division builds in flexibility to explore options. Students usually participate in three lab rotations during their first year. Additional rotations can be arranged, and rotation lengths are flexible. Students usually begin their thesis research by the end of their first year.

### Qualifying Examination

After required course work is completed, each student takes a preliminary, or qualifying, examination to assess mastery of the field and the ability to integrate information across fields. Upon successful completion of the qualifying exam, the student concentrates on thesis research.

### Thesis Research

Thesis research begins once the student has chosen a laboratory in which to work. With his or her mentor — the laboratory's principal investigator — the student devises a thesis project and chooses an advisory committee. Typically between the end of their second year and middle of their third year, students present their thesis proposals to the thesis committee. Upon successful approval of the thesis proposal, the student officially becomes a doctoral candidate. For the rest of the student's program of study, the thesis committee monitors progress and meets at least once a year to provide analysis and advice. It also serves as the thesis defense committee when the thesis is ready for presentation. Most students complete and defend their dissertations by the end of their sixth year.

### Scientific Scholarship

Keeping abreast of scientific developments is critical for faculty and students alike. The Division offers many ways to stay current. More than 15 weekly biology seminars provide excellent opportunities to meet outstanding scientists from outside Washington University. Several annual symposia bring internationally recognized speakers to campus. Journal clubs meet weekly for students, postdoctoral fellows, and faculty to present and discuss current scientific literature. Program retreats allow for informal interaction among students and faculty.

The Division also provides funds for each student to defray the costs of attending a national scientific meeting.

### Admissions

Prospective students apply to the Division as a whole. Students are admitted into a specific degree program but may change their program affiliation as their interests develop.

Applications are available online during the first week in September at <http://dbbs.wustl.edu>. Review of applications begins November 15, and early application is encouraged. Deadline to apply is December 1. In general, students are admitted only for the fall semester of each year.

Requirements for admission to the doctoral programs of the Division include the following:

- A baccalaureate degree in the natural, mathematical, physical, engineering sciences or psychology.
- Courses in calculus, general and organic chemistry, physics, and a core sequence of basic courses in biology.
- A strong background in quantitative sciences.
- Test scores: the general GRE test is required, earned within the past five years; the subject test is optional. International students must submit scores from the Test of English as a Foreign Language (TOEFL) earned within the past two years. Applicants with scores of 100 or higher on the TOEFL IBT will be considered.
- At least one year of undergraduate or postgraduate research experience is required. Letters of recommendation concerning research experience and accomplishments are particularly important.

There is no application fee.

Qualified applicants are invited to an interview in St. Louis. The Division pays travel expenses, up front, within the United States and Canada. International applicants will be reimbursed for travel from their U.S. port of entry to St. Louis.

### Business Administration

Washington University's Olin Business School is one of the nation's leading research institutions, with a faculty whose research productivity consistently ranks among the highest in the business school community. Olin faculty members are recognized the world over for their important contributions to the creation of new knowledge. We also take great pride in our commitment to excellence in teaching.

Our PhD students are guided by highly productive researchers who are among the nation's top scholars. Faculty work closely with students to help them hone their research skills, often building one-on-one mentoring relationships that include co-authoring research papers.

Development of strong problem-solving skills equips our students to strategically address complex, unstructured business

issues that result in innovative thinking and new ideas for research that have value to the academic community and application in the business world.

Olin's PhD program in business provides:

- Challenging core curriculum and a strong background in basic disciplines.
- Emphasis on collaborative relationships between faculty and students, which enhances the educational process and the search for the student's first faculty appointment.
- Personalized advising for successful completion of PhD program requirements and a customized course of study that fits the student's particular area of interest.
- Collegial network built on mutual respect and a shared school of thought. Olin faculty members promote one-on-one mentoring relationships, often partnering with students for research that leads to co-authoring papers.
- A competitive edge in the business education market.

**Contact Person:** Erin Murdock  
**Phone:** (314) 935-6340  
**E-mail:** [murdockel@wustl.edu](mailto:murdockel@wustl.edu)  
**Departmental website:** <http://olin.wustl.edu/EN-US/academic-programs/PhD>

## Faculty

### Dean

#### Mahendra Gupta

Dean and Geraldine J. and Robert J. Virgil Professor of Accounting and Management  
PhD, Stanford University

### Endowed Professors

#### Nicholas S. Argyres

Vernon W. and Marion K. Piper Professor of Strategy  
PhD, University of California, Berkeley

#### Yossi Aviv

Dan Broida Professor of Operations and Manufacturing Management  
PhD, Columbia University

#### William P. Bottom

Joyce and Howard Wood Distinguished Professor of Organizational Behavior  
PhD, University of Illinois at Urbana-Champaign

#### J. Stuart Bunderson

George and Carol Bauer Professor of Organizational Ethics and Governance  
PhD, University of Minnesota

#### Siddhartha Chib

Harry C. Hartkopf Professor of Econometrics and Statistics  
PhD, University of California, Santa Barbara

#### Kurt T. Dirks

Bank of America Professor of Managerial Leadership  
PhD, University of Minnesota

#### Philip H. Dybvig

Boatmen's Bancshares Professor of Banking and Finance  
PhD, Yale University

#### Richard M. Frankel

Beverly and James Hance Professor of Accounting  
PhD, Stanford University

#### Barton H. Hamilton

Robert Brookings Smith Distinguished Professor of Entrepreneurship  
PhD, Stanford University

#### Ronald R. King

Myron Northrop Professor of Accounting  
PhD, University of Arizona

#### Panos Kouvelis

Emerson Professor of Operations and Manufacturing Management  
PhD, Stanford University

#### Glenn M. MacDonald

John M. Olin Professor of Business, Law and Economics  
PhD, University of Rochester

#### Judi McLean Parks

Reuben C. and Anne Carpenter Taylor Professor of Organizational Behavior  
PhD, University of Iowa

#### Todd T. Milbourn

Hubert C. and Dorothy R. Moog Professor of Finance  
PhD, Indiana University

#### Chakravarthi Narasimhan

Philip L. Siteman Professor of Marketing  
PhD, University of Rochester

#### Jackson A. Nickerson

Frahm Family Professor of Organization and Strategy  
PhD, University of California, Berkeley

#### Stephen M. Nowlis

August A. Busch Jr. Distinguished Professor of Marketing  
PhD, University of California, Berkeley

#### Robert A. Pollak

Hemreich Distinguished Professor of Economics  
PhD, Massachusetts Institute of Technology

#### P. B. (Seethu) Seetharaman

W. Patrick McGinnis Professor of Marketing  
PhD, Cornell University

**Anjan Thakor**

John E. Simon Professor of Finance  
PhD, Northwestern University

**Guofu Zhou**

Frederick Bierman and James E. Spears Professor of Finance  
PhD, Duke University

**Professors**

**Hillary Anger Elfenbein**

PhD, Harvard University  
(Organizational Behavior)

**Ohad Kadan**

Professor of Finance  
PhD, Hebrew University  
(Finance)

**Anne Marie Knott**

PhD, University of California, Los Angeles  
(Strategy)

**Hong Liu**

PhD, University of Pennsylvania  
(Finance)

**Associate Professors**

**Mariagiovanna Baccara**

PhD, Princeton University  
(Economics)

**Markus Baer**

PhD, University of Illinois at Urbana-Champaign  
(Organizational Behavior)

**Tat Y. Chan**

PhD, Yale University  
(Marketing)

**Lingxiu Dong**

PhD, Stanford University  
(Operations and Manufacturing Management)

**Michelle M. Duguid**

PhD, Cornell University  
(Organizational Behavior)

**Daniel Elfenbein**

PhD, Harvard University  
(Organization and Strategy)

**Armando Gomes**

PhD, Harvard University  
(Finance)

**Joseph K. Goodman**

PhD, University of Texas at Austin  
(Marketing)

**Radhakrishnan Gopalan**

PhD, University of Michigan  
(Finance)

**Mark Leary**

PhD, Duke University  
(Finance)

**Robyn LeBoeuf**

PhD, Princeton University  
(Marketing)

**Selin Malkoc**

PhD, University of North Carolina  
(Marketing)

**Xiumin Martin**

PhD, University of Missouri–Columbia  
(Accounting)

**J. Lamar Pierce**

PhD, University of California, Berkeley  
(Strategy)

**Raymond T. Sparrowe**

PhD, University of Illinois at Chicago  
(Organizational Behavior)

**Raphael Thomadsen**

PhD, Stanford University  
(Marketing)

**Fuqiang Zhang**

PhD, University of Pennsylvania  
(Operations and Manufacturing Management)

**Assistant Professors**

**Kimball Chapman**

PhD, Pennsylvania State University  
(Accounting)

**Phech Colatat**

PhD, Massachusetts Institute of Technology  
(Strategy)

**Cynthia Cryder**

PHD, Carnegie Mellon University  
(Marketing)

**Joseph Cullen**

PhD, University of Arizona  
(Economics)

**Hengchen Dai**

PhD, University of Pennsylvania  
(Organizational Behavior)

**Jennifer Dlugosz**

PhD, Harvard University  
(Finance)

**Jason Donaldson**

PhD, London School of Economics  
(Finance)

**Ignacio Esponda**

PhD, New York University  
(Economics)

**Amr Farahat**

PhD, Massachusetts Institute of Technology  
(Operations and Manufacturing Management)

**Jacob Feldman**

PhD, Cornell University  
(Operations and Manufacturing Management)

**Arun Gopalakrishnan**

PhD, University of Pennsylvania  
(Marketing)

**Daniel Gottlieb**

PhD  
(Economics)

**Jared Jennings**

PhD, University of Washington  
(Accounting)

**Baojun Jiang**

PhD, Carnegie Mellon University  
(Marketing)

**Zachary Kaplan**

PhD, University of Chicago  
(Accounting)

**Roni Kisin**

PhD, University of Chicago  
(Finance)

**Isaac Kleshchelski**

PhD, Northwestern University  
(Finance)

**Andrew P. Knight**

PhD, University of Pennsylvania  
(Organizational Behavior)

**Kevin Koharki**

PhD, Pennsylvania State University  
(Accounting)

**Jeongmin Lee**

PhD, University of Maryland  
(Finance)

**Zawadi Lemayian**

PhD, Massachusetts Institute of Technology  
(Accounting)

**Asaf Manela**

PhD, University of Chicago  
(Finance)

**Thomas Maurer**

PhD, London School of Economics  
(Finance)

**Yulia Nevskaya**

PhD, University of Rochester  
(Marketing)

**Giorgia Piacentino**

PhD, London School of Economics  
(Finance)

**Matthew Ringgenberg**

Assistant Professor  
PhD, University of North Carolina  
(Finance)

**Bernardo Silveira**

PhD, New York University  
(Economics)

**Janis Skrastins**

PhD, London Business School  
(Finance)

**Ngoc-Khan Tran**

PhD, Massachusetts Institute of Technology  
(Finance)

**Ulya Tsolmon**

PhD, Duke University  
(Strategy)

**Senior Lecturers**

**Sergio Chayet**

PhD, Northwestern University  
(Operations and Manufacturing Management)

**Samuel S. Chun**

PhD, Washington University  
(Marketing)

**Charles J. Cuny**

PhD, Stanford University  
(Finance)

**Thomas D. Fields**

PhD, Northwestern University  
(Accounting)

**Michael R. Gordinier**

PhD, University of Wisconsin–Madison  
(Management)

**Clifford K. Holekamp**

MBA, Washington University  
(Entrepreneurship)

**John Horn**

PhD, Harvard University  
(Economics)

**Konstantina Kiouis**

PhD, University of California, Los Angeles  
(Business Administration)

**Lee J. Konczak**

PhD, University of Missouri–St. Louis  
(Organizational Behavior and Leadership Development)

**David R. Meyer**

PhD, University of Chicago  
(Management)

**Patrick Rishe**

PhD, Binghamton University  
(Finance)

**Richard Ryffel**

MBA, Boston University

**James Sawhill**

PhD, University of California, Berkeley  
(Marketing)

**Eli M. Snir**

PhD, University of Pennsylvania  
(Management)

**Mark E. Soczek**

ABD, Northwestern University  
(Accounting)

**Durai Sundaramoorthi**

PhD, University of Texas at Arlington  
(Management)

**Lecturers**

**Linda Buhr**

PhD, Lindenwood University  
(Education)

**Cathy Dunkin**

BA, University of Missouri–Columbia  
(Management)

**Staci Thomas**

MA, Webster University  
(Communications)

**Adjunct and Other Faculty**

**Richard Batsell**

PhD, University of Texas at Austin  
(Marketing)

**Anatoliy Belaygorod**

PhD, Washington University  
(Finance)

**Lyda Bigelow**

PhD, University of California, Berkeley  
(Organization and Strategy)

**Sanford J. Boxerman**

JD, Harvard Law School  
(Business Law)

**Spencer Burke**

JD, University Pennsylvania  
(Management)

**David Butler**

MBA, Washington University  
(Healthcare Management)

**Amy Choy**

PhD, Washington University  
(Accounting)

**Jeremy Degenhart**

BS, BA, Washington University  
(Finance)

**William R. Emmons**

PhD, Northwestern University  
(Finance)

**Peter S. Finley**

MBA, Stanford University  
(Entrepreneurship)

**David Fischer**

MBA, Indiana University  
(Finance)

**Ronald K. Fisher**

JD, Washington University  
(Labor and Employment Laws)

**Micah Frankel**

PhD, University of Arizona  
(Accounting)

**David Fritsch**

MBA, Washington University  
(Business Administration)

**Bruce Lee Hall**

PhD, MD, Duke University  
(Health Care Management)

**Dan Ingberman**

PhD, Carnegie Mellon University  
(Economics)

**Carol F. Johaneck**

MBA, Saint Louis University  
(Marketing)

**Nevada Kent IV**

BSBA, Tennessee Technical University  
(Accounting)

**Sachin Lahoti**

MS, Oklahoma State University  
(Management)

**Mark B. Lewis**

MBA, Washington University  
(Finance)

**Steven Malter**

PhD, University of Missouri–St. Louis  
(Management)

**Mary Mason**

MD, Washington University  
(Management)

**Mark P. McLaren**

MBA, Columbia University  
(Accounting)

**Paul W. Paese**

PhD, University of Illinois at Urbana–Champaign  
(Organizational Behavior)

**Donald W. Paule**

LLM, Washington University  
(Business Law)

**Tim Petron**

MA, Saint Louis University  
(Accounting)

**Jeff Plunkett**

JD, St. Louis University  
(Accounting)

**David A. Poldoian**

MBA, Harvard University  
(Entrepreneurship)

**Robert A. Portnoy**

PhD, University of Missouri–Columbia  
(Human Resource Management)

**Casey Quinn**

MBA, Washington University  
(Healthcare Management)

**Ryan Rakestraw**

MBA, Washington University  
(Finance)

**Anthony Sardella**

MBA, Northwestern University  
(Management)

**Christopher Schlanger**

MD, University of Missouri–Columbia  
(Healthcare Management)

**William Self**

PhD, University of California, Berkeley  
(Business Administration)

**Martin K. Sneider**

MBA, Harvard University  
(Marketing)

**Sharon A. Tucker**

PhD, University of Chicago  
(Human Resources Management)

**Cynthia A. Wichelman**

MD, Stanford University  
(Business and Medicine)

## Professors Emeriti

**Nicholas Baloff**

(Business and Public Administration)

**Nicholas Dopuch**

Hubert C. & Dorothy R. Moog Professor Emeritus of Accounting

**Stuart I. Greenbaum**

Former Dean and Bank of America Professor Emeritus of  
Managerial Leadership

**James T. Little**

Donald Danforth Jr. Distinguished Professor Emeritus of  
Business  
PhD, University of Minnesota

**Ambar Rao**

Fossett Distinguished Professor Emeritus of Marketing

**J. George Robinson**

Professor Emeritus of Marketing

**Robert L. Virgil Jr.**

Dean Emeritus of the John M. Olin Business School and  
Professor Emeritus of Accounting

**John E. Walsh Jr.**

(Management)

## Degree Requirements

PhD students must complete 72 semester hours, maintain satisfactory academic progress, pass certain examinations, fulfill residence and teaching requirements, and write, defend, and submit a dissertation.

Upon successful completion of business PhD study, the student is awarded a PhD from the Graduate School of Arts & Science at Washington University.

## Core Foundation

- A strong foundation in microeconomics or psychology, probability & statistics and quantitative methods
- Exposure to the student's area of specialization and the required research tools
- Successful completion of the core exam

## Specialization

- Course work in one or more areas of study
- In-depth knowledge in chosen field
- Active association with the research process through faculty mentoring
- Completion of the field exam

## Research

- Participation with faculty in research activities
- Research paper presentation
- Individual research pursuing a specialized topic of interest
- Preparation and defense of the student's dissertation

## Chemistry

The Department of Chemistry offers a PhD in Chemistry, with research specializations available in biological, organic, inorganic, physical, and nuclear chemistry. Doctoral students often work at the interface of two or more subfields of chemistry; they may also work at the interface of different scientific disciplines. Lab assignments are therefore made according to each student's research project. Chemistry students may work in a lab outside the department or alongside students from other departments in a chemistry lab.

The department's **research strengths** in each subfield of chemistry are as follows:

- Biological
- Biophysical, Bioorganic, Bioinorganic, Biochemistry
- Organic
- Synthetic, Organometallic, Bioorganic, Physical Organic, Asymmetric
- Catalysis
- Inorganic
- Coordination, Organometallic, Materials, Bioinorganic, Main Group
- Physical
- Computational, Laser Spectroscopy, Theoretical, Magnetic Resonance
- Biophysical, Physical Organic, Materials
- Nuclear and Radiochemistry
- Stability of Nuclei, Radioisotopes for Medical Studies

On average, students take between five and six years to complete the PhD. Requirements specific to Chemistry include attendance at Thursday evening research presentations during the student's first fall semester, passing four cumulative exams within the first four semesters (at least two of which should be in the student's chosen subdiscipline), and annual recertification in laboratory safety. Almost all students serve as teaching assistants in their first two years and must perform satisfactorily in their TA duties. Students must also make annual research presentations to their advisory committee, prepare a satisfactory dissertation research proposal, and pass an oral examination.

Washington University's graduate student stipends are in the top 25% of stipends at similar universities, and St. Louis has a low cost of living. The department has an excellent record of placing its graduates in a wide variety of jobs: academic, industrial, governmental, legal, consulting, writing/editing, and entrepreneurial.

## Contact Information

**Email:** loomis@wustl.edu or rachel.dunn@wustl.edu or barbara22@wustl.edu

**Phone:** (314) 935-8534 or (314) 935-6521 or (314) 935-7316

**Departmental website:** <http://www.chemistry.wustl.edu/graduate>

## Chair

### William Buhro

PhD, University of California, Los Angeles  
Inorganic/Materials Chemistry

## Endowed Professor

### Jacob Schaefer

Charles Allen Thomas Professor of Chemistry  
PhD, University of Minnesota  
Physical Chemistry

## Professors

### Joseph Ackerman

PhD, Colorado State University  
Physical Chemistry

### Robert Blankenship

PhD, University of California, Berkeley  
Biochemistry and Physical Chemistry

### Peter Gaspar

PhD, Yale University  
Organic Chemistry

### Michael L. Gross

PhD, University of Minnesota  
Analytical, Organic, and Biophysical Chemistry

**Richard Gross**

PhD, Washington University  
Biophysical and Bioorganic Chemistry

**Sophia Hayes**

PhD, University of California, Santa Barbara  
Inorganic/Materials Chemistry

**Dewey Holten**

PhD, University of Washington  
Physical/Biophysical Chemistry

**Ronald Lovett**

PhD, University of Rochester  
Materials/Physical Chemistry

**Kevin Moeller**

PhD, University of California, Santa Barbara  
Organic Chemistry

**Jay W. Ponder**

PhD, Harvard University  
Organic and Computational Chemistry

**Demetrios Sarantites**

PhD, Massachusetts Institute of Technology  
Nuclear Chemistry

**Lee Sobotka**

PhD, University of California, Berkeley  
Nuclear Chemistry

**John-Stephen Taylor**

PhD, Columbia University  
Bioorganic Chemistry

## Associate Professors

**Vladimir Birman**

PhD, University of Chicago  
Organic Chemistry

**John Bleeke**

PhD, Cornell University  
Organometallic/Inorganic Chemistry

**Gina Frey**

Florence E. Moog Professor of STEM Education  
PhD, University of Utah  
Chemical Education

**Richard Loomis**

Director of Graduate Studies  
PhD, University of Pennsylvania  
Physical Chemistry

**Richard Mabbs**

PhD, Nottingham University, UK  
Physical Chemistry

**Liviu Mirica**

PhD, Stanford University  
Bioinorganic, Inorganic, and Biological Chemistry

**Gary Patti**

PhD, Washington University  
Physical, Biological Chemistry/Genetics and Medicine

## Assistant Professors

**Alexander Barnes**

PhD, Massachusetts Institute of Technology  
Physical/Biological Chemistry

**Julio D'Arcy**

PhD, University of California, Los Angeles  
Inorganic and Materials Chemistry

**Bryce Sadtler**

PhD, University of California, Berkeley  
Inorganic and Materials Chemistry

**Timothy Wencewicz**

PhD, University of Notre Dame  
Chemical Biology and Medicinal Chemistry

## Degree Requirements

### PhD Requirements

- 72 semester hours of graduate credit in courses and research
- Satisfactory performance on written cumulative examinations
- Satisfactory performance on annual pre-thesis committee meetings
- Demonstration of teaching competence
- Dissertation research and preparation of dissertation
- Satisfactory performance on a final oral dissertation defense

The PhD degree usually requires five years of study beyond the bachelor's degree.

## Classics

The Department of Classics is committed to the threefold study of antiquity via the languages and literatures, the history, and the art and architectural remains. Washington University possesses an internationally recognized resource in the John Max Wulfling Coin Collection. The coins can be applied to studies in numismatics, history, economics, and art. The department possesses its own large archive of epigraphical and papyrological materials, and a small collection of papyri is also housed in Olin Library. Opportunities for collaboration exist with numerous other departments and programs.

Students may obtain a Master of Arts in Classics by completing 36 units of credit (all at the graduate level, including some required courses), completing a Greek and Latin reading list, and taking a series of examinations. A thesis, normally involving 3

units of supervised research during the second year of study, is not a required component but is strongly recommended for students who plan eventually to pursue a PhD in Classics.

Examinations for the AM include sight translation exams in Greek and Latin during the first year of study and translation exams based on reading lists in the same languages. Students not planning to go on to a PhD program in Classics may opt to take the exam in Greek or Latin only. Those who pursue this option must still complete a minimum of 6 credits of graduate-level course work in the other language. All students are also required to demonstrate ability to read scholarly prose in either French or German, through examination or course work.

Students may obtain a Doctor of Philosophy in Classics by completing 72 units of credit for course work (57 credits, all at the graduate level) and research. The program consists of 1) rigorous training in Greek and Latin languages and literatures, culminating in mastery of a list of Greek and Latin authors and relevant scholarship, 2) broad training in the subfields of Classics and all aspects of Greco-Roman cultures, by means of both a general "Materials & Methods" proseminar and seminars focusing on topics such as history, material culture, and philosophy, and 3) the rigorous cultivation of special fields, initially through course work and later through independent research. Candidates will be examined in all these areas, and the skills and expertise acquired will be combined in the dissertation project. They will also demonstrate competence in reading scholarly prose in German and either French or Italian. Finally, candidates will gain experience teaching the core parts of the Classics curriculum: the Greek and Latin languages and topics in Greco-Roman civilization. One of the required graduate courses will be concerned with Classics pedagogy.

PhD candidates have the option to pursue, in addition to the above requirements, one of several special interdisciplinary tracks: Ancient History, Ancient Performance, Ancient Music, and Ancient Philosophy. Requirements for these tracks include courses in affiliated departments, concentration on the track area in the special field exam and dissertation, and in some cases additional projects.

**Contact Person:** Catherine Keane  
**Phone:** (314) 935-5123  
**E-mail:** classics@wustl.edu  
**Departmental website:** <https://classics.artsci.wustl.edu>

## Chair

### Timothy Moore

John and Penelope Biggs Distinguished Professor of Classics, Department Chair  
PhD, University of North Carolina  
Professor Moore's work concentrates on several areas of classical antiquity, including the comic theatre of Greece and Rome, Greek and Roman music, and Roman historiography. Current projects include a book on music in Roman tragedy, articles on the history and performance of Roman comedy, and a long-range project on the influence on the modern world of the Roman historian Livy. He also has interests in the history of theatre, especially American musical theatre and Japanese Kyogen comedy.

## Associate Professors

### William Bubelis

Director of Undergraduate Studies; Curator of the Wulfling Coin Collection  
PhD, University of Chicago  
Greek history and epigraphy (especially Athens and the Peloponnese, and Northern Greece); Economic history and numismatics (particularly taxation and fiscal behavior, banking, numeracy); Ancient religion and its institutional dimensions, especially as they intersect with economics; Attic oratory and historiography; the political economy of the ancient Near East (especially Iron Age Mesopotamia, Cyprus, and the Achaemenid Empire)

### Catherine Keane

Director of Graduate Studies  
PhD, University of Pennsylvania  
Professor Keane's research and teaching interests range broadly over Greek and Roman literature and culture, but center on the comic genres and their engagement with moral, social, and literary problems. Her research focuses on the Roman verse satirists Horace, Persius, and Juvenal.

## Assistant Professors

### Roshan Abraham

PhD, University of Pennsylvania  
Early Christianity and Greco-Roman Religions; Magic and Divination; Greek Prose of the Second Sophistic and Late Antiquity; Theurgy and Neoplatonism; Travel and Pilgrimage in Antiquity

### Karen Acton

PhD, University of Michigan  
The history of Rome, especially in the late Republic and early Empire; Roman historiography; Roman numismatics

#### Thomas Keeline

PhD, Harvard University  
Latin literature; history of classical scholarship and education from antiquity to the present; rhetoric; textual criticism; lexicography; metrics

#### Luis Alejandro Salas

PhD, University of Texas  
Greek and Roman medicine, philosophy, and intellectual history; medical and philosophical sectarianism; Galen of Pergamum; Aristotelian psychology; Greek prose

### Lecturers

#### Kristin Mann

PhD, University of California, Los Angeles  
Kristin Mann's main research interests are the Greek and Latin fable collections, the literature and culture of the early Roman Empire, and the ancient Greek novel. Her dissertation, *The Fabulist in the Fable Book*, examines how the presence of the fabulist in the fable book — his biography, his self-characterizations, and his statements of purpose — combine to form a hermeneutic frame through which the fables may be interpreted.

#### Kathryn Wilson

PhD, University of Pennsylvania  
Kathryn Wilson's research interests focus on the intersection of poetry and science. She is especially interested in Hellenistic literature and the relationship between different intellectual enterprises occurring during that time. She is also interested in the evolution of the genre of didactic poetry.

### Professors Emeriti

#### Carl W. Conrad

PhD, Harvard University

#### Robert D. Lamberton

PhD, Yale University

#### George M. Pepe

PhD, Princeton University

#### Susan I. Rotroff

PhD, Princeton University

#### Merritt Sale

PhD, Cornell University

## Degree Requirements

### AM in Classics

Candidates may obtain an AM in degree in Classics by completing 36 *graduate units* of credit, completing a reading list, and taking a series of examinations. Students planning to continue in the Classics department's PhD program must also write a master's thesis. Others may choose to complete the AM with or without a thesis.

### Course work: 36 hours, including:

#### Specific required courses: 6 hours

L08 Classics 502: Research and Publication on the Greek and Roman World - a proseminar on materials and methods of the profession (3 credits)

L08 Classics 510: Comparative Grammar of Greek and Latin (3 credits, offered every 2 years, alternating with 502)

#### Other course requirements: 27 hours (for AM with thesis)

All credits must be at the 400 level or above.

At least 6 credits in Greek (L09) (one or more options is offered every semester)

At least 6 credits in Latin (L10) (one or more options is offered every semester)

Most remaining courses will be in Greek, Latin, and Classics. With the guidance of the Director of Graduate Studies, students may take 3 units of course work outside of the Classics department.

#### Research Credits: 3 hours

The master's thesis counts for 3 credits. A student opting not to write a thesis will substitute another course.

### Modern language competence:

German, French or Italian; the requirement may be fulfilled by course work or examination.

### Program exams:

Greek and Latin Sight Reading, X 2

Greek Reading List

Latin Reading List

Students not planning to go on to a PhD program in Classics may opt to take the Reading List exam in one language (Greek or Latin) only. Those who pursue this option must still complete at least 6 credits in the other language at the 400 level. The examination will require the student to demonstrate competence in translation and interpretation, as well as knowledge of the relevant scholarship.

### PhD in Classics

The Classics PhD requires 72 *graduate units* of course work and research in combination. Up to 24 of these credits may be transferred from an outside AM program in Classics, at the discretion of the Graduate Committee. (Requirements listed below include requirements for the AM in Classics at Washington University.) All credits must be at the 400 level or above. With the guidance of the Director of Graduate Studies, students may take up to 12 credits outside the Classics department to enhance their graduate study.

## Course work: 57 hours, including:

### Specific required courses: 9 hours

L08 Classics 502: Research & Publication on the Greek and Roman World - a proseminar on materials and methods of the profession (3 credits)

L08 Classics 510: Comparative Grammar of Greek and Latin (3 credits, offered every 2 years, alternating with 502)

L08 Classics 515: A pedagogy course (3 credits, to be offered every two years)

### Other course requirements: 30 hours

At least 12 credits in Greek (L09) (one or more options is offered every semester)

At least 12 credits in Latin (L10) (one or more options is offered every semester)

At least 3 credits in ancient history (at least one course will be offered every two years)

At least 3 additional credits in Classics (L08) (at least one course will be offered every year)

### 3) Elective courses: 18 hours

Includes courses for individual tracks, optional independent studies in preparation for exams, and other courses, to be chosen after consultation with the Director of Graduate Studies.

## Research Credits: 15 hours

Master's thesis: 3 hours

Dissertation credits: 12 hours

## Program exams:

Greek and Latin Sight Reading, X 2

Greek Reading List

Latin Reading List

Comprehensive Exam

Special Field Exam

## Modern language competence:

German and French or German and Italian; the requirement may be fulfilled by coursework or examination in each case.

## Dissertation requirements:

Dissertation prospectus

Dissertation colloquium

Dissertation

Dissertation defense

## Comparative Literature

The Comparative Literature program at Washington University offers an AM; a PhD; a combined PhD with Chinese, English, French, German, Japanese, or Spanish; and a graduate

certificate in Translation Studies. Additionally, a track within the PhD program for international writers targets promising authors and public intellectuals from around the world who wish to enhance their career by coupling it with academic training in comparatist literary studies in the U.S. In close cooperation with other humanities programs, Comparative Literature enables students to tailor a course of study appropriate to their areas of interests, strengths, and long-term goals.

At its core, Comparative Literature aims to provide students with a grounding in contemporary and historically significant methodologies and approaches to comparative literature, including especially those pertinent to the following four areas: transcultural studies; translation studies; literature, politics, and society; and new and old media. Students combine this core with thorough study of at least one primary literature, usually nationally or geographically defined, and two secondary fields. Depending on the focus of their degree and course of study, graduates typically apply for academic positions in comparative literature programs; language, literature, and culture departments; and such programs as gender studies, theater, performing arts, and area studies. Some graduates may choose to pursue employment in publishing and arts-related fields outside of academia.

**Contact Person:** Rebecca O'Laughlin  
**Phone:** (314) 935-5170  
**E-mail:** complit@artsci.wustl.edu  
**Departmental website:** <http://complit.artsci.wustl.edu/>

## Director

### Lynne Tatlock

Hortense and Tobias Lewin Distinguished Professor in the Humanities  
PhD, Indiana University

## Endowed Professors

### Robert E. Hegel

Liselotte Dieckmann Professor of Comparative Literature in Arts & Sciences and Professor of Chinese  
PhD, Columbia University

### Paul Michael Lützeler

Rosa May Distinguished Professor in the Humanities  
PhD, Indiana University

### Timothy Moore

John and Penelope Biggs Distinguished Professor of Classics  
PhD, University of North Carolina

### Gerhild Scholz Williams

Barbara Schaps Thomas and David M. Thomas Professor in the Humanities; Associate Vice Chancellor for Academic Affairs  
PhD, University of Washington

## Professors

### **Nancy Berg**

PhD, University of Pennsylvania

### **Matt Erlin**

PhD, University of California, Berkeley

### **Robert Henke**

PhD, University of California, Berkeley

### **Joseph Loewenstein**

PhD, Yale University

### **Marvin H. Marcus**

PhD, University of Michigan

### **Stamos Metzidakis**

PhD, Columbia University

### **Anca Parvulescu**

PhD, University of Minnesota

### **Wolfram Schmidgen**

PhD, University of Chicago

### **Michael Sherberg**

PhD, University of California, Los Angeles

### **Harriet Stone**

PhD, Brown University

## Associate Professors

### **Miriam Bailin**

PhD, University of California, Berkeley

### **Andrew Brown**

PhD, University of Virginia

### **J. Dillon Brown**

PhD, University of Pennsylvania

### **Lingchei Letty Chen**

PhD, Columbia University

### **Tili Boon Cuillé**

PhD, University of Pennsylvania

### **Jennifer Kapczynski**

PhD, University of California, Berkeley

### **Catherine Keane**

PhD, University of Pennsylvania

### **Stephanie Kirk**

PhD, New York University

### **Tabea Linhard**

PhD, Duke University

### **Erin McGlothlin**

PhD, University of Virginia

### **Jessica Rosenfeld**

PhD, University of Pennsylvania

## Assistant Professors

### **Kurt Beals**

PhD, University of California, Berkeley

### **Ignacio Infante**

PhD, Rutgers University

### **Anne-Marie McManus**

PhD, Yale University

## Lecturers

### **Emma Kafalenos**

Senior Lecturer (retired)

PhD, Washington University

### **Philip Purchase**

PhD, University of Southern California

## Professors Emeriti

### **Milica Banjanin**

PhD, Washington University

### **Naomi Lebowitz**

Former Hortense and Tobias Lewin Professor in the Humanities

PhD, Washington University

## Degree Requirements

### PhD in Comparative Literature

The PhD in Comparative Literature is a 72-credit program, including 60 units of course work and 12 units of dissertation credit. Course distribution includes at least 12 core credits in Comparative Literature seminars, including Comp Lit 402; 12 credits in one nationally, ethnically, or geographically defined literature; and 6 credits in a second such literature. Drama may be substituted for either the primary or secondary literature. The program also requires the study of a third discipline relevant to the student's intellectual and critical concern, e.g., a third literature, music, the plastic arts, philosophy, history, film. Students who obtain a PhD in Comparative Literature, including those in all of the joint programs, need to demonstrate (as a minimum), in addition to superior skills in English, superior ability in at least a second language and reading skills in a third language. Beyond the minimum, the choice and number of languages required correspond to each student's three areas of concentration. Students interested in pursuing one of the combined degrees should apply to the appropriate language and literature program (Chinese, English, French, German, Japanese, or Spanish), indicating their interest in the joint degree. The application will be vetted by the respective program and by Comparative Literature. The joint degree requires 72 units of course work, 12 of which must be taken in Comparative Literature.

## AM in Comparative Literature

The AM in Comparative Literature may be earned along the way to the PhD; Comparative Literature normally does not admit students who intend to pursue the AM only. It requires 36 units of course work, including Comp Lit 402 Introduction to Comparative Literature and three additional courses in Comparative Literature on the graduate level. The remaining 24 units of graduate course work may be pursued in Comparative Literature or in affiliated departments or programs. Students desiring to be admitted to the PhD should plan their course of study so as to build a solid foundation for the PhD. All students earning an AM in Comparative Literature must demonstrate superior skills in English and, as a minimum, reading ability in one additional language pertinent to their areas of interest. These 36 hours count toward the PhD requirement. Students funded by teaching assistantships teach in Comparative Literature and/or in one of our allied programs, including language instruction. In order to be qualified to serve as a Teaching Assistant in a language department, students may be required to take the relevant course in language pedagogy. The program strives to give students a variety of teaching experiences that prepare them for the academic market in their areas of concentration.

## Graduate Certificate in Translation Studies

With its interest in crossing the borders between languages, cultures, and national literatures, the discipline of Comparative Literature implicitly performs and assesses theoretically the function and value of "translation" in the widest sense of the term. The Graduate Certificate in Translation Studies offered by Comparative Literature explicitly supports both the practical turn to translation and the critical and theoretical assessment of translation in the context of globalization, multiculturalism, cultural hybridity, postcolonial theory, and an emphasis on interdisciplinarity. The certificate requires 15 units of course work overall, 6 of which may count toward both the certificate and the PhD degree, and 9 of which may be allocated only to the certificate. Applicants must already be enrolled in a PhD program at Washington University.

## Earth and Planetary Sciences

This is one of the few departments in the country with an integrated program of graduate instruction and research that treats Earth as a planet and makes direct use of knowledge gained by exploring the solar system. Our field is changing rapidly and becoming more interdisciplinary as links emerge among geology, geochemistry, geophysics, and geobiology. New opportunities are developing as research in natural hazards, energy sources, and the environment become more important to the global economy, and new space missions are developed to explore the solar system. The relatively small size of the department engenders a friendly and personal place, offering a lot of personal interaction with faculty and researchers. Our

graduate students have the opportunity to use cutting-edge laboratory equipment, high-speed parallel computers, and the latest planetary mission data in the course of their research. They travel to field sites around the world and publish research in the leading scientific journals. Our graduates go on to carry out research and teaching at major educational and research institutions and are leaders in earth and planetary sciences.

The PhD program is open to qualified students who have previously specialized in earth sciences, physics, chemistry, biology, environmental science, mathematics, or engineering. The GRE general test is required for all applicants. Doctoral students earn the master's degree as they complete the first phase of their graduate program; students are normally not admitted to a terminal AM. The doctoral training emphasizes modern, quantitative approaches. It involves field and laboratory work as well as theory and advanced computation. The degree requirements are intended to ensure that all graduate students develop independence and originality of thought and acquire knowledge that has sufficient breadth and depth. In addition to their course work, students must complete a research project in the second semester. Second-year research culminates in the oral defense of a publication-quality research paper. A successful oral defense and completion of 36 semester hours of graduate-level course work are required to qualify for the AM and advance to full candidacy for the doctoral degree. Completion of the teaching requirement, completion of any remaining advanced course work, and a successful oral defense of the doctoral dissertation are required for the award of the PhD degree. Students are expected to complete their academic program by the end of their fifth year.

**Phone:** (314) 935-5610  
**E-mail:** gradadmit@levee.wustl.edu  
**Departmental website:** <http://eps.wustl.edu/graduate>

### Chair

**Viatcheslav S. Solomatov**  
Professor  
PhD, Moscow Institute of Physics and Technology

### Endowed Professors

**Raymond E. Arvidson**  
James S. McDonnell Distinguished University Professor  
PhD, Brown University

**Bradley L. Jolliff**  
Scott Rudolph Professor of Earth and Planetary Sciences  
PhD, South Dakota School of Mines and Technology

### Professors

**Robert E. Criss**  
PhD, California Institute of Technology

**Robert F. Dymek**

PhD, California Institute of Technology

**M. Bruce Fegley, Jr.**

PhD, Massachusetts Institute of Technology

**William B. McKinnon**

PhD, California Institute of Technology

**Jill D. Pasteris**

PhD, Yale University

**William Hayden Smith**

PhD, Princeton University

**Douglas A. Wiens**

PhD, Northwestern University

**Michael E. Wyession**

PhD, Northwestern University

## Associate Professors

**Jeffrey G. Catalano**

PhD, Stanford University

**David A. Fike**

PhD, Massachusetts Institute of Technology

**Jennifer R. Smith**

Dean of the College of Arts & Sciences

PhD, University of Pennsylvania

## Assistant Professors

**Alexander S. Bradley**

PhD, Massachusetts Institute of Technology

**Michael J. Krawczynski**

PhD, Massachusetts Institute of Technology

**Philip Skemer**

PhD, Yale University

## Professors Emeriti

**Ghislaine Crozaz**

PhD, Université Libre de Bruxelles

**Harold L. Levin**

PhD, Washington University

**Roger J. Phillips**

PhD, University of California, Berkeley

**Frank A. Podosek**

PhD, University of California, Berkeley

## Degree Requirements

### Graduate Program Details & Requirements

#### 1. Introduction

PhD training in the Department of Earth and Planetary Sciences (EPS) emphasizes modern, quantitative approaches. It involves field and laboratory work as well as theory and advanced computation. The degree requirements are intended to ensure that all PhD candidates develop independence and originality of thought and acquire knowledge that has sufficient breadth (the broad knowledge of Earth and planetary sciences) and depth (a deeper working knowledge of a specific research area). The department believes that the major advances in science are likely to be made at the discipline boundaries and therefore does not define disciplines and does not impose strict rules on what constitutes depth. Instead, the Research Advisory Committee, working with the student, defines the areas of expertise the student wishes to pursue.

In the second semester, students complete their Graduate Research Project (Section 3.2 (p. 59)), which will be used during student's evaluation at the end of first year (Section 4 (p. 59)). During the fourth semester, the student takes an oral exam to be formally allowed to pursue the PhD (for deadlines see Section 5 (p. 59)). Students also demonstrate competence in teaching by completing the Doctoral Teaching Requirement (Section 6 (p. 60)). Finally, the PhD student completes and defends a dissertation (Section 7 (p. 61)).

The requirements described below apply to students who enter the program in Fall 2011 or later. Students who entered the program before Fall 2011 may either switch to the new system or stay in the old requirements system (for more information visit <http://eps.wustl.edu/graduate/requirements-old>).

#### 2. Advising

##### 2.1 First-Year Advisor

The First-Year Advisor is a member of the EPS teaching faculty who provides guidance to all first-year students. The First-Year Advisor (i) recommends courses for the student to take during the first year, (ii) acts as a sounding board and provides feedback to the student regarding her or his progress in the program, and (iii) provides an assessment to the faculty as a whole regarding the student's qualifications to proceed in the PhD program (Section 4 (p. 59)).

##### 2.2 Major Advisor

Choices of a Major Advisor and a research problem area are very important decisions that affect much of the student's graduate career. Each student, by the end of the second semester of graduate work, should select an area of

concentration and a Major Advisor. The Major Advisor must be a member of the EPS teaching faculty.

The selection process will vary greatly among students. Some students will know exactly with whom they wish to work before they arrive. Other students will have the possibilities narrowed down to two or three faculty members, while still others will select from among the faculty as a whole. Students should make every effort to get to know faculty members with whom they might work and are encouraged to interview faculty members so as to understand better their research interests. Courses, seminars, and departmental colloquia given by professors also provide information on their research interests. The Graduate Research Project (Section 3.2 (p. 59)) undertaken in the second semester is an obvious way to get to know the research style of a specific faculty member.

### 2.3 Research Advisory Committee

By the end of the first semester in residence, the student, in consultation with the First-Year Advisor and the faculty member supervising the first-year research project, must form her or his Research Advisory Committee. Populating the committee is the responsibility of the student. This is a three-person committee, tailored to the student's research interests, and chaired initially by the faculty member supervising the first-year research project and by the Major Advisor after the student selects her or his Major Advisor. Besides the chair of the Research Advisory Committee, at least one other person must be a member of the EPS teaching faculty. The third person may be a member of the teaching faculty, the research faculty, or the senior academic research staff. This committee will be part of the student's Oral Examination Committee (Section 5.3 (p. 60)) and the Dissertation Examination Committee (Section 7.1 (p. 61)).

Graduate students are required to meet with the members of their Research Advisory Committee together or individually at least once a year:

- First-year students meet with their committee in the fall semester. The committee helps the student to select courses to build breadth and depth of knowledge and to choose a research topic.
- Second-year students meet with their committee in the fall semester to ensure that a research project is well underway and that the student is acquiring adequate knowledge.
- Following successful completion of the oral exam, students meet with their committee annually in the spring semester to give a summary of research progress.
- Students nearing degree completion meet with their committee at least 6 months prior to the expected defense date. Students will provide the committee with an outline of the dissertation, including expected completion dates for various aspects of the research. At this time committee members may identify areas that need expansion or reconsideration.

The students are responsible for making sure that the meetings happen on time and are advised to contact the committee members at least one month before the meeting. The meetings with the Research Advisory Committee must be documented using a **Graduate Student Meetings with Research Advisory Committee** form available from the department office and on the resources page of the department website (<http://eps.wustl.edu/resources>). The committee members sign and provide comments on the form. The forms are filed with the department office and will be evaluated during the orals and the dissertation defense.

## 3. Course Requirements

### 3.1 College and Department Requirements

It is recognized that students entering the program will bring a diverse background in their undergraduate course work. The department has a history of admitting students to the graduate program with degrees in physics, chemistry, and engineering, as well as the traditional Earth and planetary sciences. An adequate general foundation would be three semesters of calculus, a year of general physics, and a year of general chemistry. Students have been successful in the program, depending on their discipline interests, with less than this level of preparation. However, two semesters of calculus constitutes a minimum mathematics background to be successful in the program. The First-Year Advisor and the Research Advisory Committee will determine a student's needs in physics, math, and chemistry and provide advice and direction on the means of removing deficiencies.

The minimum prerequisites to take almost any course within the department are EPSc 201 Earth and the Environment, EPSc 352 Earth Materials, and EPSc 353 Earth Forces. Incoming students whose degree area is outside of the Earth and Planetary Sciences will be expected to obtain the knowledge in these areas by the end of the first year, using a combination of any appropriate undergraduate courses and steps taken within the department to remove these deficiencies. Students with no prior course work in the Earth and Planetary Sciences will be required to enroll in EPSc 201 (Earth and the Environment), including a laboratory section. Enrollment in EPSc 201 does not count toward graduate standing and will not fulfill a course requirement for the PhD or AM degrees. Upon completion of EPSc 201, the First-Year Advisor and the Research Advisory Committee will determine the student's future course needs. For students with some prior course work in the Earth and Planetary Sciences, the First-Year Advisor and the Research Advisory Committee will determine a student's needs in this area and provide advice on the means of removing deficiencies. The PhD program is flexible in its course work requirement. It is not intended that a student will repeat her or his undergraduate experience. Those students with a strong undergraduate background will be able to concentrate on research at a relatively early stage in the program.

The Graduate School of Arts & Sciences requires the completion of **72 semester units for the PhD degree**. Within the department this requirement is met by a combination of formal course work and, later in the program, EPSc 592 (Research).

The department requires the completion of eight courses, at least six of which must be in EPSc. All courses taken must be at the 400-level or above. Under certain circumstances, the student can take EPSc 3XX by enrolling in EPSc 590 (Independent Study). Except for the latter case, EPSc 590 as well as 591, 592, and 595 do not qualify.

The student selects courses in consultation with her or his adviser and the Research Advisory Committee (Section 2.3 (p. 58)). The student and the adviser are responsible for ensuring that the selected courses provide breadth and depth of knowledge needed for the student to conduct graduate research and successfully finish the graduate program. The Research Advisory Committee recommends courses during annual committee meetings and as a result of the oral examination.

Students entering the graduate program who have previously received a master's degree in Earth Sciences or a closely-related field may petition to waive up to two of the six required EPSc courses. This petition may be submitted no earlier than the second semester in residence and should contain a justification for the number of courses to be waived that identifies how previous course work is similar to that offered by the department. The waiver must be endorsed by the student's Research Advisory Committee and forwarded to the Director of Graduate Studies. The petition will then be considered for approval by the Graduate Studies Committee.

Students who have completed or are close to completing the required 72 units can register for EPSc 884, Doctoral Continuing Student Status course (EPSc 883 for master's students) offered by the Graduate School to students who take fewer than 9 units but need to maintain their full-time student status. For more information, visit the Graduate School's website: <http://graduateschool.wustl.edu>.

### 3.2 Graduate Research Project

Each student will take a minimum of 3 units of EPSc 591 (Graduate Research Project) in the second semester. In conjunction with a faculty adviser or advisers, the student selects, designs, and completes a one-semester research project in a field of interest to the student. The student will submit a written report on the research project, such as in the format of a scientific article or proposal, by the last day of the final exam period of their second semester in residence. This report will cover the research scope, approach and analytical methods employed, data analysis, conclusions, and references. The report will be reviewed by the student's Research Advisory Committee, including the research supervisor. Each member will provide comments on the report to the student and will

also provide an assessment of the report during the first-year evaluation.

The Graduate Research Project will help the student develop research skills early in the program, and give the faculty an early assessment of the student's potential for research. The Project also gives the student the opportunity to "try out" a faculty member before selecting a Major Advisor.

The topic chosen by the student, in mutual agreement with a faculty member, must be sufficiently well-defined and limited in scope so that it can be completed by the end of the semester. Students are encouraged to interview several faculty members during their first semester and to have their project well-defined by the time the second semester commences. The Graduate Research Project supervisor may be a member of either the teaching faculty or the research faculty.

### 3.3 Research

Each student is also required to take at least 3 hours of EPSc 592 (Research) in the third and fourth semesters. This is to help ensure that the student is well prepared for the Oral Exam (Section 5 (p. 59)).

## 4. Evaluation at the End of First Year

At the end of the second semester the EPS faculty will review the performance of the student in course work and the Graduate Research Project, taking into account feedback from the student's instructors and Research Advisory Committee. During this review the faculty will assess whether the student's academic, research, and professional performance is likely to lead to success in the PhD program and in the workplace for the types of positions that require a PhD degree. A written summary of this assessment will be provided to the student. As with other assessments of student performance, the faculty may recommend that the student be placed on probation. A student deemed unlikely to succeed in the PhD program or in a career requiring a PhD will also be encouraged to spend the next year completing the AM degree before leaving the program.

## 5. Research Paper and Orals

The research carried out during the summer following the first year, and the research hours taken during the third and fourth semesters will culminate in a research paper and an oral defense of the research undertaken. A research proposal may be presented as an option to the research paper when circumstances warrant this option.

### 5.1 Research Paper

During the fourth semester, the student will work closely with the Major Advisor to develop a research paper. The written format will be that of a journal paper and it is, in fact, expected that the document (or something close to it) will eventually be submitted to a journal for publication. Students should consult their Major Advisor regarding the research paper format appropriate for their research area. When the Major Advisor is satisfied with the

effort, the paper will be distributed, at least one week before the oral exam, to the entire department faculty. The research paper need not become part of the thesis project.

### 5.2 Research Proposal

When circumstances warrant, with adviser approval, a research proposal may be completed in lieu of a research paper. The format will be generally similar to that of the research paper, except that data collection and analysis will be much reduced or entirely absent. In most cases, the proposal option would be used only if the topic area was too broad or the data collection still largely incomplete, perhaps due to instrumentation problems. The proposal is not expected to be suitable for publication, but the other guidelines, requirements, and deadlines for the research paper do apply to the research proposal and its oral defense.

### 5.3 Oral Examination

To maintain satisfactory academic progress (Section 12 (p. 63)) students must take the oral examination in their fourth semester. The deadline is April 30 (or November 30 if the fourth semester happens to be fall). The Oral Examination Committee will consist of the Research Advisory Committee and the department Faculty Examiner. The committee will be chaired by the Major Advisor, and attendance at the examination is limited to the Research Advisory Committee, the department Faculty Examiner, and any other interested faculty members.

The examination begins with an introduction of the student by the Major Advisor. This will be followed by an oral presentation by the student for about thirty minutes and then by questions from the Oral Examination Committee and any other faculty members present. The examination is expected to last at least two hours and will conclude once the examiners are satisfied that the student's ability to present and defend her or his research and related areas has been thoroughly assessed. Questions will cover both the primary and peripheral subjects of the research as well as Earth and planetary sciences in general. The primary interest of the committee will be to evaluate the student's grasp of the context and justification for the research, the experimental, observational, or theoretical methods required, and the accuracy and significance of the results. A mature performance is expected in the student's understanding of the research, the clarity of presentation, and the thoughts about future directions of the work. The student will also be expected to demonstrate breadth and depth of knowledge and be familiar with the relevant published literature related to her or his research. At the end of the question period the Oral Examination Committee will determine an outcome of the exam. There are three possible outcomes:

- The student advances to candidacy for the PhD degree (a PhD-level pass).
- The student achieves an AM-level pass or fails the orals and is allowed to retake the examination one more time to try to achieve the next level. The deadline for the retake is

three months after the deadline for the regular oral exam: July 31 (or February 28 if the fourth semester happens to be fall). The student will automatically be placed on probation. A PhD-level pass of the retake will remove the student from probation and advance the student to candidacy for the PhD degree. Failure to achieve a PhD-level pass of the retake will result in a recommendation of dismissal from the graduate program to the Dean of Graduate Studies.

- The student achieves an AM-level pass or fails the oral examination while already being on academic probation. No retake is provided in this case. This results in a recommendation of dismissal from the graduate program to the Dean of Graduate Studies.

After the examination, the Major Advisor will prepare a short (generally 0.5 to 1 page) written summary of the examination outcome that will identify areas of needed improvement. For cases where a retake is required, this document will specifically outline the deficiencies that must be remedied for the student to pass the exam. After preparation, the Major Advisor will send this summary to the Oral Examination Committee members for review and editing. The committee must agree on the final document text and then provide the written summary to the student within one week of the examination.

It is the intention of the faculty that those students who have a successful first-year evaluation should also have a high probability of passing the oral examination if they adequately prepare. Dismissal from the program should thus be an unusual outcome of the exam. Successful completion of the orals will partially satisfy the requirements for an AM degree, which will be awarded once all AM requirements are met (see Section 8.2.2 (p. 62) for specific requirements).

## 6. Teaching Requirement

### 6.1 Definitions and Qualifying Elements

A crucial component in the training of successful scholars is the development of oral and written communication skills. Moreover, exposure to formal teaching methods should be part of the training of future faculty. Consequently, the Graduate School has added specific teaching requirements to the mandatory elements of the doctoral degree.

The department requires completion of 15 units of teaching experience at either the basic or advanced level. At least 5 units must be at the basic level and 5 units at the advanced level. A unit is broadly defined as an hour spent communicating with a group of students or scholars.

For the basic teaching requirement, the EPS faculty have stipulated the following experiences as qualifying for one unit of teaching per event:

- Conducting a discussion or review section of a class.
- Teaching or co-teaching a laboratory session (one unit per session).

- Delivering a lecture in class using notes provided by the professor.
- Leading a full class session of an EPS seminar course or of an EPS journal club.

For the advanced teaching requirement, the EPS faculty have stipulated the following experiences as qualifying for one unit of teaching per event:

- Delivering a paper (oral or poster) at a science meeting. At least one unit must be completed in this fashion.
- Preparing from scratch and delivering a lecture in an EPS class. At least one, but not more than two, units must be completed in this fashion.
- Delivering a "brown bag" seminar giving the results of the student's own research.
- An outreach activity such as preparing and presenting a lecture and/or demonstration in science at a middle or high school.

An important element of the EPS graduate program is pedagogical training. Students entering the program in Fall 2011 and later are required to attend at least five training workshops at the The Teaching Center or equivalent events on or off campus. For students enrolling Fall 2014 or later, at least three workshops must be attended in the first year and all five must be attended by the end of the second year.

### 6.2 Filing Forms

Each teaching unit completed must be documented using the **Certification of Teaching Units for PhD Candidates** form available from the Department Office and on the departmental website (<http://eps.wustl.edu/resources>). Each form must be signed by the student's adviser or by a faculty member supervising the event and filed with the Department Office. In the fall semester, the completed **Certification of Teaching Units for PhD Candidates** form should be submitted no later than December 1, and in the spring semester, no later than May 1. *Prompt filing following the date of the event is strongly recommended.* Once the total required units are accomplished, the Department Office will notify the Graduate School of the completion.

### 6.3 Responsibility for Completion

- a. The student is the person primarily responsible for completion of the teaching requirement, including scheduling, preparation, presentation, and documentation of each teaching experience.
- b. The adviser is tasked with monitoring advisee progress toward completion of the teaching requirement. This support includes interacting with the EPS Teaching Assistant coordinator to schedule the necessary T.A. assignments and providing financial resources, where possible, to cover at least partially the student's travel expenses associated with participation in national science meetings.

c. The student will arrange for a faculty member to attend and evaluate at least one of the events at either the basic or advanced level. This faculty member will provide constructive criticism as well as a written evaluation of the teaching skills of the student on the completion form.

d. The Department Office records each unit as submitted by the student (see Section 6.2 (p. 61) and Section 11.2 (p. 63)).

## 7. Dissertation

### 7.1 Graduate School Requirements

A dissertation must be defended in accordance with the requirements of the Graduate School of Arts & Sciences. The students, in consultation with their Major Advisor, make the Dissertation Examination Committee. The Committee consists of at least five faculty members. Four of the five must be tenured or tenure-track Washington University faculty; one of these four may be a member of the emeritus faculty. The fifth member must be from outside the student's degree program and must have a doctoral degree and an active research program, whether at Washington University, at another university, in government, or in industry. Students are given the option of having a sixth member of the committee if they desire. All committees must be approved by the Dean of the Graduate School or by her or his designee, regardless of whether they meet the normal criteria. For a complete description of the Graduate School requirements and the Doctoral Dissertation Guide, visit the Graduate School's website (<http://graduateschool.wustl.edu>) and the department website (<http://eps.wustl.edu/resources>).

### 7.2 Time to Completion

All PhD requirements, including dissertation defense, are expected to be completed at the latest by the end of the tenth semester. Time extensions must be agreed to by the faculty.

## 8. Requirements for AM Degree

### 8.1 Graduate School requirements

Students are not generally admitted who intend to earn only a master's degree. However, graduate students usually earn one on the way to the doctorate. Students working toward a master's degree must maintain a B average in their course work. There are two tracks for the master's degree:

**Track I.** Completion of a minimum of 36 units including a thesis (up to 6 credits).

**Track II.** Completion of a minimum of 36 units plus an examination.

Visit the Graduate School's website for additional information on requirements.

### 8.2 Department Requirements

The department imposes additional requirements for the master's degree:

### 8.2.1 Track I

This track is available to graduate students who are directed to a master's degree as a result of the first-year evaluation or, in rare cases, who declare their intent to pursue a master's degree upon entering the program.

#### 8.2.1.1 Course Requirements

The department requires the completion of six courses, five of which must be in EPS. All courses taken must be at the 400-level or above. EPSc 590, 591, 592, or 595 do not qualify, except when students enroll in EPSc 590 in place of EPSc 3XX courses. Completion of 36 units is required for the AM degree by the department. Courses for the first year will be determined jointly by the student, the First-Year Advisor, and faculty in the student's area of interest. The student and Major Advisor will select subsequent courses needed to meet requirements.

#### 8.2.1.2 Thesis

A thesis must be completed and successfully defended before a committee of no fewer than three department faculty members. Prior approval of the thesis by the Major Advisor is necessary to bring it to a defense. Graduate School requirements are available on the Graduate School's website as well as in the **Master's Thesis Guide**. The thesis defense is open to any interested person. Following questions from the general audience, all except for the student and the examining committee are excused. Members of the examining committee then may continue the questioning.

#### 8.2.1.3 Time to Completion

Students are expected to fulfill all requirements, including successful defense of a thesis by the end of their fourth semester. The deadline for the thesis defense is the same as for the oral exam (Section 5.3 (p. 60)). Time extensions must be approved by the EPS faculty.

### 8.2.2 Track II

A master's degree will be awarded under the Track II guidelines with either a PhD-level or master's-level pass of the PhD oral exam (Section 5.3 (p. 60)). At least 36 credits must have been completed, as well as the successful completion of

1. the Graduate Research Project (EPSc 591)
2. course requirements (see Section 8.2.1.1 (p. 62)).

## 9. Financial Support

Most incoming graduate students receive financial support in the form of tuition scholarships and fellowships, teaching assistantships or research assistantships. The Tolman and Wheeler Fellowships are typically given to EPS students who have expressed interest in the Earth and planetary sciences. Astronaut, Haskin, and Graduate Fellowships are awarded by the McDonnell Center for the Space Sciences to students with interests in planetary science. EPS students are also eligible to compete for special fellowships sponsored by the Graduate

School. The current stipends for these awards and for the assistantships are available from the Department Office. For more information see "Fellowships, Assistantships, and Financial Aid" on the department website ([http://eps.wustl.edu/graduate/financial\\_support](http://eps.wustl.edu/graduate/financial_support)).

No separate application is required for department-administered fellowships. All students are considered for any fellowship for which they qualify. Some Graduate School fellowships do require separate application. Opportunities to compete for these fellowships are announced by the Graduate School.

The maximum duration for financial support by any of the funding sources administered by the department is normally as follows:

For AM Candidates: four (4) semesters.

For PhD Candidates: ten (10) semesters.

Tuition scholarships are provided by the Graduate School for graduate-level course work up to the number of units required for the degree. The Graduate School also covers the Continuing Student Fee (CSF) for Teaching Assistants or those supported by University-sponsored fellowships. For other students, the department will pay the Continuing Student Fee, at maximum, until the end of the third year for master's students and until the end of the sixth year for doctoral students. Beyond this time, the student is responsible for payment of any student fees.

Most financial awards, including the financial aid administered by the department, are contingent on the maintenance of satisfactory academic progress (Section 12 (p. 63)). For more information see "Eligibility for Financial Support" on the department website (<http://eps.wustl.edu/graduate/eligibility>).

## 10. Communication Skills

All graduate students must possess written and oral communications skills sufficiently well developed to support the student's academic program and to support possible teaching assistant assignments.

It is particularly important for international students to remove any communications deficiencies immediately. Financial support via teaching assistantship is a possibility at any point in the academic program.

Students must be qualified to complete teaching assignments including those requiring oral as well as written skills — or else forfeit the financial aid offered. International students are required to take an oral English competency examination prior to the beginning of the first semester. If improvement in communication skills is indicated, it is the student's responsibility to develop the appropriate skill level. The university provides English as a Second Language (ESL) courses to help international students achieve communication competency. English Language Programs (ELP) staff provides courses and academic English language support designed to strengthen the English language proficiency of non-native English speakers. For

more information visit the website of the Office for International Students & Scholars (<http://oisshome.wustl.edu>).

## 11. Preliminary Graduation Requirements (Master's and PhD)

### 11.1 Intent to Graduate Form

All candidates for a degree must file an **Intent to Graduate Form** by the College-specified date to be considered for degree conferral (this includes PhD students obtaining their master's degree). The form is available online in WebSTAC. It can also be downloaded from the resources page of the department website (<http://eps.wustl.edu/resources>). Paper copies are available from the Office of Student Records (<http://studentrecords.wustl.edu>) or from the Dean's Office. The deadline for filing the form is printed each semester on the university calendar in the Course Listings or may be obtained by contacting the Dean's Office or the Office of Student Records.

Once the student files the form, the student's academic division is notified to consider her or him as a candidate for degree. They will evaluate the student's record to determine if the student has met degree requirements and notify the department of the names of all final degree recipients. The Office of Student Records then posts degrees conferred and their conferral dates to the student's record.

If the student fails to complete degree requirements during the semester for which the form is filed, the student must refile the form for a subsequent degree period.

### 11.2 Notice of Title, Scope, and Procedure of Dissertation Form

The Graduate School requires that the **Notice of Title, Scope, and Procedure of Dissertation Form** (available on the Graduate School's forms page) be completed before the start of the fifth year of full-time enrollment or at least six months before degree conferral, whichever is earlier. Students are advised that this form requires signatures from the Major Advisor, Research Advisory Committee, and Department Chair. Students should plan accordingly in order to obtain all required signatures before the submission deadline. Completion of this form is necessary to maintain satisfactory academic progress based on Graduate School policy.

## 12. Policies on Academic Integrity and Performance

### 12.1 Academic Integrity

As set out by the Graduate School of Arts & Sciences, students are expected to comply with the university's academic integrity policy (<http://graduateschool.wustl.edu/files/graduate/AcademicIntegrity.pdf>). Academic integrity violations (e.g., cheating, plagiarism, research misconduct) will be referred to the Graduate School for adjudication. Students should be aware that

conviction of violating the academic integrity policy can result in failure of a course or even dismissal from the university.

### 12.2 Academic Performance

All students are expected to maintain satisfactory academic performance as defined on the Graduate School's website. This includes completing all PhD requirements except for the dissertation by the fourth year, maintaining a cumulative grade point average of at least 3.0 in courses counting toward their 72 hours, not carrying at one time more than 9 semester hours for which grades I, X, or N are recorded, and submission of a dissertation proposal, in the form of a completed *Title, Scope, and Procedure Form*, before beginning the ninth semester (fifth year) of continuous enrollment. The department imposes additional criteria:

- Students are expected to maintain a cumulative grade point average of at least 3.0 exclusive of hours taken for research (EPSc 592).
- Students are expected to complete the Graduate Research Project (EPSc 591) in the second semester in residence, as specified in Section 3.2, and must demonstrate proficiency in the conduct of research.
- Students are expected to take and successfully pass the oral examination by the deadline specified in Section 5.3.
- Students are expected to make timely progress toward degree completion through the conduct of scientific research and the production of scholarly work (for example, peer-reviewed journal articles, conference presentations) at the level of excellence expected of a Washington University PhD.
- Students are expected to complete the requirements of teaching assistantships.

Students who do not maintain satisfactory academic progress may be put on probation or, in rare cases, face dismissal as described in the department's Plan for Supervising Academic Progress and the Graduate School of Arts & Sciences Policy on Probation and Dismissal for Academic Reasons.

## East Asian Languages and Cultures

The **Department of East Asian Languages and Cultures** (EALC) 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. EALC offers the **AM in Chinese and Japanese**, and the **PhD in Chinese Language and Literature, Japanese Language and Literature, Chinese and Comparative Literature, and Japanese and Comparative Literature**.

The goal of these programs is to produce scholars well-trained in their chosen languages, firmly grounded in the relevant linguistic and literary traditions, and thoroughly conversant with

critical discourses (indigenous and Western) relevant to their fields. With research strengths that cover premodern poetry and poetics, gender and sexuality, religious texts and traditions, narrative, memoir, dramatic literature, postmodernity and more, our internationally recognized faculty is poised to offer graduate students careful and consistent mentoring. Admitting only a select number of graduate students a year, our programs allow individualized guidance. In the completion of these programs at the PhD level, candidates have extended firsthand exposure to the modern societies whose languages, literatures, and cultures they study and significant teaching experience in both the language and the literature classroom. Students with a strong background in language training and experience are given preference in admission.

**Phone:** (314) 935-4448  
**E-mail:** ealc@wustl.edu  
**Departmental website:** <http://ealc.wustl.edu>

## Chair

**Rebecca Copeland**  
Professor  
PhD, Columbia University  
Japanese literature

## Endowed Professor

**Robert Hegel**  
Liselotte Dieckmann Professor of Comparative Literature  
PhD, Columbia University  
Chinese literature

## Professors

**Beata Grant**  
PhD, Stanford University  
Chinese; Religious Studies

**Marvin H. Marcus**  
PhD, University of Michigan  
Japanese literature

## Associate Professors

**Lingchei Letty Chen**  
PhD, Columbia University  
Chinese literature

**Ji-Eun Lee**  
PhD, Harvard University  
Korean literature

**Jamie Newhard**  
PhD, Columbia University  
Japanese literature

## Assistant Professor

**Zhao Ma**  
PhD, Johns Hopkins University  
Chinese history

## Professor of the Practice

**Virginia S. Marcus**  
MA, University of Michigan, New York University  
Japanese language

## Senior Lecturers

**Shino Hayashi**  
MA, University of Wisconsin, University of Minnesota  
Japanese language

**Mijeong Mimi Kim**  
EdD, University of San Francisco  
Korean language

**Xia Liang**  
MA, Beijing Normal University  
Chinese language

**Judy Zhijun Mu**  
PhD, University of Illinois at Urbana-Champaign  
Chinese language

**Wei Wang**  
MA, University of Minnesota, Beijing Language and Culture University  
Chinese language

**Fengtao Wu**  
MA, Indiana University Bloomington  
Chinese language

## Lecturers

**Wenhui Chen**  
MA, National Taiwan Normal University  
Chinese language

**Insung Ko**  
PhD, University of Hawaii at Manoa  
Korean language

**Chun-ying Lin**  
MA, National Taiwan Normal University  
Chinese language

**Ke Nie**  
MA, Capital Normal University  
Chinese language

**Kanako Yao**  
MA, Ohio State University  
Japanese language

## Degree Requirements

### Master of Arts in Chinese or Japanese

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

1. Language proficiency through the fourth level, and two semesters of classical Chinese or Japanese. No more than 12 units in language training may be applied.
2. At least two semesters of literary history courses.
3. A research proseminar, preferably in the first year of study.
4. Either a master's thesis or a master's essay, or successful completion of a comprehensive written exam.

The degree is completed in four semesters. Applicants must submit a writing sample that indicates a student's facility with literary critique, preferably an analytical essay on a work of East Asian literature, generally 10-30 pages.

### PhD in Chinese Language and Literature or PhD in Japanese Language and Literature

The PhD in Chinese Language and Literature or Japanese Language and Literature combines the study of Chinese or Japanese literature with training in literary theory and critical methodology. Students are required to take courses in Chinese or Japanese literature, in another East Asian literature or culture, and in literary and cultural theory and critical methodology; some of these may focus on other literatures. Doctoral students must demonstrate native or near-native competence both in English and in either Chinese or Japanese. If needed for research in the chosen area of specialization, sufficient proficiency in one or more additional languages may be required.

Students must pass a qualifying examination at the end of their first year and three comprehensive examinations at the end of their third year. In addition, before the beginning of the fourth year, students must submit a dissertation prospectus for committee approval. Unless the student has taken graduate-level course work in the relevant research language(s) or demonstrated sufficient competence in other ways, language competence examinations will be required by the end of course work. All students gain teaching experience in language or literature, or both. Students may serve as teaching assistants in lower-level Chinese or Japanese courses; advanced graduate students may serve as instructors of a course which includes Chinese or Japanese texts.

Applicants for these PhD programs are screened on the basis of their competence in Chinese or Japanese and in English; their demonstrated ability to write analytically and to think critically;

their commitment to the study of Chinese or Japanese literature and culture; and their interests in areas of research strength among our faculty (early modern, modern, and contemporary China and Japan). Applicants should have completed a master's degree in: a) Chinese or Japanese literature or cultural studies, b) East Asian Studies with focus on Chinese or Japanese literature/culture, or c) another relevant field.

### PhD in Chinese or PhD in Japanese and Comparative Literature

The PhD in Chinese or the PhD in Japanese and Comparative Literature is offered jointly with the Committee on Comparative Literature. The focus of these programs is comparison of the contents, theoretical basis, and methodologies of Chinese or Japanese literature and a second literature (Western or non-Western), within the context of a familiarity of the cultural context and historical background of the literatures, and the critical and historical methodology of modern literary study. Whether or not applicants enter the program with a relevant master's degree, the requirements for our AM in Chinese or Japanese must be met as part of the requirements for the joint PhD degree. Required course work, qualifying examination, comprehensive examinations, dissertation prospectus, demonstration of language proficiency, and teaching opportunities are analogous to those in the PhD programs solely in Chinese or Japanese.

### East Asian Studies

The **East Asian Studies program** consists of faculty members with Asian specializations drawn from various departments. The program offers the **AM in East Asian Studies**, a broad-ranging study of East Asia across regional, historical, and disciplinary boundaries. Students may pursue language training in Chinese, Japanese, or Korean.

**Phone:** (314) 935-4448  
**E-mail:** [eas@wustl.edu](mailto:eas@wustl.edu)  
**Departmental website:** <http://eas.wustl.edu>

### Director

**Lori Watt**  
Associate Professor  
PhD, Columbia University  
History, International & Area Studies

### Endowed Professor

**Robert E. Hegel**  
Lieselotte Dieckmann Professor of Comparative Literature  
PhD, Columbia University  
East Asian Languages & Cultures

## Professors

### Rebecca Copeland

PhD, Columbia University  
East Asian Languages & Cultures

### Beata Grant

PhD, Stanford University  
East Asian Languages & Cultures

### Marvin H. Marcus

PhD, University of Michigan  
East Asian Languages & Cultures

## Associate Professors

### Lingchei Letty Chen

PhD, Columbia University  
East Asian Languages & Cultures

### Mary-Jean Cowell

PhD, Columbia University  
Performing Arts

### Ji-Eun Lee

PhD, Harvard  
East Asian Languages & Cultures

### Steven B. Miles

PhD, University of Washington  
History

### Jamie Newhard

PhD, Columbia University  
East Asian Languages & Cultures

## Assistant Professors

### Kristina Kleutghen

David W. Mesker Career Development Professor of Art History  
PhD, Harvard University  
Art History

### Seng Kuan

PhD, Harvard University  
Architecture

### Diane Lewis

PhD, University of Chicago  
Film & Media Studies

### Zhao Ma

PhD, Johns Hopkins University  
East Asian Languages & Cultures

### Priscilla Song

PhD, Harvard University  
Anthropology

## Professor of the Practice

### Virginia S. Marcus

MA, University of Michigan, New York University  
East Asian Languages & Cultures

## Senior Lecturers

### Shino Hayashi

MA, University of Wisconsin-Madison  
East Asian Languages & Cultures

### Mijeong Mimi Kim

EdD, University of San Francisco  
East Asian Languages & Cultures

### Xia Liang

MA, Beijing Normal University  
East Asian Languages & Cultures

### Judy Zhijun Mu

PhD, University of Illinois at Urbana-Champaign  
East Asian Languages & Cultures

### Wei Wang

MA, University of Minnesota, Beijing Language and Culture  
University  
East Asian Languages & Cultures

### Fengtao Wu

MA, University of Indiana Bloomington  
East Asian Languages & Cultures

## Lecturers

### Wenhui Chen

MA, Taiwan Normal University  
East Asian Languages & Cultures

### Insung Ko

PhD, University of Hawaii at Manoa  
East Asian Languages & Cultures

### Chun-ying Lin

MA, National Taiwan Normal University  
East Asian Languages & Cultures

### Ke Nie

MA, Capital Normal University  
East Asian Languages & Cultures

### Kanako Yao

MA, Ohio State University  
East Asian Languages & Cultures

## Degree Requirements

### Master of Arts in East Asian Studies

The Master of Arts in East Asian Studies, which requires 30 units of graduate study, offers advanced interdisciplinary

training in Chinese, Japanese, and Korean studies in areas that include literature, history, anthropology, and art history. Students are required to take the core seminar, normally in their first semester, and at least two substantial writing seminars. A student may choose to write a master's thesis or master's essay, or take the exit exam. At least three years of preparation in one Asian language is expected, with no more than 12 units of language applying to the degree. The degree can be completed in three or four semesters; with the thesis option, the degree requires four semesters to complete.

## Joint Law and East Asian Studies Program

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 international legal studies with the broad offerings of the interdisciplinary East Asian Studies program. The joint program offers an integrated curriculum with courses that may be applied toward both degrees. Nine units are cross-counted between the degrees; the program can be completed in seven semesters. Applicants must apply to and be accepted by both programs.

## Joint Business and East Asian Studies Program

The Joint Business and East Asian Studies Program, leading to an MBA from the Olin Business School and an AM in East Asian Studies, offers the opportunity to develop an expertise in business practice within an East Asian context. Six units are cross-counted between the degrees; the program can be completed in six semesters. Applicants must apply to and be accepted by both programs.

## Economics

The Department of Economics at Washington University has a strong reputation in training high-quality PhD students for academic positions and for private- and public-sector jobs. We are seeking qualified students from any field who possess strong analytical abilities in mathematics and statistics and who are willing to complete a challenging PhD degree in economics.

The department offers students financial support while in good academic standing. Below is an ideal chronology of PhD study.

## An Ideal Chronology of PhD Study

### Summer Before the First Year (August)

- Mathematics Review and Statistics Review

### Year 1

#### Core Courses:

- Fall Semester/Spring Semester
- 501 Macro I /502 Macro II

- 503 Micro I /504 Micro II
- 511 Quantitative Methods II /5161 Applied Econometrics
- 512 Quantitative Methods I

### Year 2

- Preliminary exams in late August, retake preliminary exams (if necessary) in December
- Field courses
- Research paper proposal

### Year 3

- Complete research paper
- Field courses
- Dissertation proposal

### Year 4

- Work on dissertation
- Prepare and present job market paper

### Year 5

- Enter the job market
- Finish and defend the dissertation

### Year 6

It is our expectation that the typical student will finish the PhD in five years. In some cases, a sixth year of study may be necessary, but at this stage the onus is on the student and the student's dissertation supervisor to convince the Director of Graduate Studies that the student remains in good academic standing. Students who are not in good academic standing will not receive financial aid.

**Contact Person:** Sonya Woolley  
**Phone:** (314) 935-5646  
**E-mail:** woolley@wustl.edu  
**Departmental website:** <http://economics.wustl.edu/graduate>

## Co-Chairs

**John Nachbar**  
Professor, Department Chair  
PhD, Harvard University  
Economic Theory

**Marcus Berliant**  
Professor, Department Associate Chair  
PhD, University of California, Berkeley  
Public Finance; Mathematical Economics; Urban Economics

## Endowed Professors

### Costas Azariadis

Edward Mallinckrodt Distinguished Professor in Arts & Sciences  
PhD, Carnegie Mellon University  
Macroeconomic Dynamics; Economic Development; Monetary  
and Fiscal Policy

### Michele Boldrin

Joseph Gibson Hoyt Distinguished Professor in Arts & Sciences  
PhD, University of Rochester  
Economic Theory; Economic Growth; Macroeconomics

### Steven Fazzari

Bert A. and Jeanette L. Lynch Distinguished Professor of  
Economics  
PhD, Stanford University  
Macroeconomics; Keynesian Economics; Investment and  
Finance

### David Levine

John H. Biggs Distinguished Professor of Economics  
PhD, Massachusetts Institute of Technology  
Game Theory

### Rodolfo Manuelli

James S. McDonnell Distinguished University Professor  
PhD, University of Minnesota  
Economic Growth and Development Economics; Macro and  
Monetary Economics

### Werner Ploberger

Thomas H. Eliot Distinguished Professor in Arts & Sciences  
PhD, Vienna University of Technology  
Statistics; Econometric Methodology; Time-Series Econometrics

### Robert Pollak

Hernreich Distinguished Professor of Economics  
PhD, Massachusetts Institute of Technology  
Environmental Economics, Microeconomics/Industrial  
Organization, Business and Government, Political Economy

### Norman Schofield

Dr. William Taussig Professor of Political Economy  
LittD (Doctor of Letters), Liverpool University  
Doctorat d'Etat en Sciences Economiques, Universite de Caen  
PhD, Essex University  
Formal theory; Comparative politics

### Ping Wang

Seigle Family Professor  
PhD, University of Rochester  
Growth/Development; Money/Macro; Economic Theory; Spatial/  
Health Economics

## Professors

### Gaetano Antinolfi

PhD, Cornell University  
Macroeconomics; Monetary and international economics

### Robert Parks

PhD, Purdue University  
Econometrics; Public Finance

### Bruce Petersen

PhD, Harvard University  
Financial Economics, Applied Microeconomics

## Associate Professors

### George-Levi Gayle

PhD, University of Pittsburgh  
Econometric Theory; Contract Theory; Labor Economics;  
Personnel Economics; and Corporate Governance

### Limor Golan

PhD, University of Wisconsin–Madison  
Labor Economics; Applied Microeconomics; Applied  
Econometrics

### Sukwoo Kim

PhD, University of California, Los Angeles  
Economic History; Urban and Regional Economics; Trade and  
Development

### Brian Rogers

PhD, California Institute of Technology  
Microeconomic theory, in particular the fields of network  
formation, social learning, and applied game theory

### Yongseok Shin

PhD, Stanford University  
Macroeconomics; Economic Growth

### Jonathan Weinstein

PhD, Massachusetts Institute of Technology

## Assistant Professors

### Anqi Li

PhD, Stanford University  
Mechanism Design, Micro Theory

### Paulo Natenzon

PhD, Princeton University  
Behavioral Economics; Decision Theory; Economic Theory

### Juan Pantano

PhD, University of California, Los Angeles  
Applied Microeconomics; Labor Economics

### Carl Sanders

PhD, University of Wisconsin  
Labor Economics particularly models with multi-dimensional  
human capital and their implications for occupational mobility  
and wage growth

### Raul Santaeulalia-Llopis

PhD, University of Pennsylvania  
Quantitative Macroeconomic Theory; Growth and Development;  
Business Cycles; Heterogeneity; HIV/AIDS

## Degree Requirements

### PhD in Economics

#### Courses

A PhD in Economics requires 72 credit hours in 500-level courses with a 3.0 grade point average with not more than 33 units of readings (597) and research (598) and workshops (5991, 5992, 5993, 5994, 5995, 5996, 5997, 5998).

Students may transfer up to 24 units of graduate work completed elsewhere but are advised to make such a transfer only after consultation with the Director of Graduate Studies.

The 72 credit hours must include:

1. Microeconomic Theory and Macroeconomic Theory: 12 hours (501, 502, 503, 504);
2. Quantitative Methods and Econometrics: 9 hours (511, 512, 5161).

Students should always consult with the Director of Graduate Studies concerning questions about their course work, particularly courses for which the student wishes to register that may lie outside a normal curriculum for an economics graduate student. Prior to registration for the fall of the second year in the program, each student must have their second-year program of courses approved by the Graduate Curriculum Committee.

#### Preliminary Exams

In order to continue the PhD program beyond the second year, students must demonstrate that they have achieved competence in the three core areas of study: microeconomics (Econ 503-504), macroeconomics (Econ 501-502), and econometrics (Econ 5161-512).

Students can demonstrate competence in the following ways:

1. By achieving course grades of A– or better in both semesters in a particular area, the student has demonstrated competence in that area.
2. By obtaining a grade of "PhD Pass" on the written preliminary examination (hereafter, prelim) in an area, the student has demonstrated competence in that area.
3. The Department's Examination Committee, comprising the first year instructors and the Director of Graduate Studies (if not otherwise included), will review the students' performance after the first year. The committee can decide that students have achieved competence in all areas based on an overall evaluation of their performance in course work and preliminary examinations in all three areas. Strong mastery of at least one area (as evidenced by course work and/or the area prelim) will be treated as a positive factor in such an evaluation.

The written prelims are held in late August at the start of the student's second year. Dates for the prelims will be announced

well in advance by the graduate secretary. Students will be informed before October whether they have demonstrated competency in all three areas of study. If, at that time, a student has not demonstrated competency in an area, the student may take a second prelim in that area. The second prelims will be held in December of the second year.

In extraordinary circumstances, an appeals process can be initiated, but only by a tenured faculty member. In such cases, the decision on the appeal will be made by the entire faculty. Students will be notified of the outcome of any appeal before the end of the spring semester of the second year.

A grade of "AM Pass" is also obtainable on the prelim. A grade of AM Pass in an area does not count as a demonstration of competence in that area, as required for admission beyond the second year of the PhD program. But students who obtain a grade of AM Pass in all three areas will receive a master's degree if they also complete the other master's degree requirements.

Prelims for recent years are available from the graduate secretary.

### Paper, Presentation, and Teaching Requirements

#### Research Paper

The research paper is intended as a stepping stone to the dissertation — a stage in the student's transition from consumption of economics to production. The goal is to write a paper in the style of published work in economics, that will ultimately serve as part of the student's PhD dissertation, and be publishable in an economics journal. Research paper projects will proceed as follows:

1. By April 20 of the second year, a student must submit to the Director of Graduate Studies a two-page proposal for the research paper, along with the names of three faculty members to serve as members of the student's research paper committee.
2. By May 5 of the second year, the three members of the student's research paper committee must submit in writing, to the Director of Graduate Studies, their approval of the student's research paper proposal.
3. By September 15 of the third year, the student must submit a completed research paper to the Director of Graduate Studies and to each of the three members of the student's research paper committee.
4. By October 1 of the third year, the research paper committee members will each submit a report to the Director of Graduate Studies, with a recommendation: accept, reject, or revise.
5. The Graduate Committee will determine, by October 15, whether research papers are accepted, rejected, or sent back for revision.

6. A student who is asked for a revision must submit the revised paper by December 15 of the third year.
7. Revised papers will be subject to the same review process as the original submission, and will ultimately be either accepted or rejected.
8. Students whose research papers are rejected are no longer in good academic standing and cannot continue in the PhD program.
9. Accepted research papers must be presented in a seminar setting during the third year to complete the research paper requirement.

### Oral Presentation Requirement

The Graduate School requires students to have given a minimum of four public oral presentations of their work, not counting the dissertation proposal and final defense.

### Teaching Requirement

There are two parts to the teaching requirement:

1. 14 units (1 unit = 1 hour of instruction) of teaching experience at the basic level. A unit of teaching at the basic level consists of one hour communicating with a group of students or scholars. This could be an undergraduate lecture, a review session for undergraduate students, or a discussion section for undergraduate students, for example.
2. 4 units of teaching experience at the advanced level. In economics, students typically fulfill this requirement by presenting papers in seminars or reading groups to groups of other graduate students and faculty, or through presentation of papers and poster sessions at professional conferences. If this component of the teaching requirement is satisfied by way of presentations in seminars or at conferences, those presentations can also fulfill the Oral Presentation Requirement.

### Dissertation Proposal

- The dissertation proposal must be passed before the end of the third academic year.
- There are two parts to the dissertation proposal: (i) the written proposal; (ii) the oral presentation.
- Before submitting the written dissertation proposal, the student must select a three-person Research Advisory Committee, consisting of three tenure-track or tenured faculty members in the economics department. The student must choose one member of this committee to serve as Dissertation Chair. The Dissertation Chair will have primary responsibility for supervising the student's dissertation. Each person on the Research Advisory Committee must agree to serve on the committee.
- When the Research Advisory Committee is chosen, the student submits to the committee a written dissertation proposal, which consists of two parts. The first part should follow the instructions for the "Title, Scope, and Procedure

Form" from the Doctoral Dissertation Guide. The second part should include what the student has written to date, along with a summary of planned work on the dissertation. A typical economics dissertation consists of three essays, which are self-contained papers that will ultimately be submitted to economics journals for publication. There are no hard-and-fast rules, though, and the exact format for the dissertation is a matter to be negotiated by the student with the Research Advisory Committee prior to the proposal and during the oral portion of the proposal. For the written proposal, the student may want to include a completed research paper, along with other work in progress. A plan, with as much detail as possible, should be included for each proposed chapter of the dissertation.

- When the Research Advisory Committee receives the written dissertation proposal, the Committee and the student must agree on a date for the Oral Proposal. Once they have agreed, this information should be communicated to the Graduate Secretary.
- The Oral Proposal is open to all faculty and students. The Oral Proposal represents an opportunity for the student and the Research Advisory Committee to agree to a contract regarding what will constitute an acceptable dissertation. A majority of the Research Advisory Committee must agree for the Proposal to pass. It is possible for the Committee to request a revision of the written proposal before agreeing to pass it, or to request another oral presentation.

### The Dissertation

Each candidate, as evidence of mastery of a specific field of knowledge and capacity for original, scholarly work, must complete a dissertation. 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 led by the student's major adviser and must be approved by the Graduate School. A Title, Scope, and Procedure Form for the dissertation must be signed by the committee members and by the program Chair, and then submitted to the Graduate School, no later than the end of the student's fourth year.

### Education

The Department of Education offers full-time programs for liberal arts graduates who desire elementary teacher certification, Master of Arts in Education (MAEd); secondary teacher certification, Master of Arts in Teaching (MAT); or a PhD in Education.

In addition, through University College, the department offers part-time students the opportunity to earn teacher certification (elementary and secondary) through a non-degree post-AB program, and those currently working in a classroom the opportunity to earn an MAEd through evening classes. For more

information on part-time programs, visit the University College - Education page of this (p. 145) *Bulletin*.

**Contact Person:** Natalia Kolk  
**Phone:** (314) 935-6791  
**E-mail:** nakolk@wustl.edu  
**Departmental website:** <http://education.wustl.edu>

## Chair

### Cindy Brantmeier

Professor of Education and Applied Linguistics  
PhD, Indiana University Bloomington

## Associate Chair

### Odis Johnson Jr.

Associate Professor and Director of Graduate Studies  
PhD, University of Michigan, Ann Arbor

## Endowed Professor

### William F. Tate

Edward Mallinckrodt Distinguished University Professor in Arts & Sciences  
PhD, University of Maryland, College Park

## Professor

### Carol Camp Yeakey

PhD, Northwestern University

## Associate Professors

### Garrett A. Duncan

PhD, The Claremont Graduate School

### Mary Ann Dzuback

PhD, Columbia University

### Rowhea Elmesky

PhD, Florida State University

## Assistant Professors

### Ebony Duncan

PhD, Vanderbilt University

### Michelle Purdy

PhD, Emory University

## Degree Requirements

### Master of Arts in Education and Master of Arts in Teaching

The MAEd and MAT programs require a minimum of 30 units of study, though additional course work is generally required to qualify for the Missouri teaching certificate. Those students seeking elementary teacher certification generally have to complete 48 credit hours in Professional Education course work. Students seeking secondary teacher certification usually

complete 30 credit hours in Professional Education course work plus 12 graduate hours in their teaching subject area.

## PhD in Education

The PhD in Education is aimed at strengthening and deepening the student's analytic understanding of education in both research and teaching. Our doctoral program focuses on three major strands of study: the social contexts of educational research, science and mathematics education, and applied linguistics. Students are afforded an opportunity to build unique programs of study by combining concentrations from: urban education and American culture studies, mathematics and science education, policy studies, second language acquisition, or English language learners. These concentrations are supplemented by core studies in history and methodology and by a seminar shared by all doctoral 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 meeting the qualifying examination requirements and for dissertation research and writing.

Students working toward a PhD in Education are expected to acquire an understanding of education as a complex social, cultural, and moral/political activity and as a field of study with rich literature bases and strong ties to disciplinary knowledge, classroom practice, and a variety of technologies. Our faculty bring special interests and expertise to the examination of educational interactions in such sites as schools, families, and other cultural institutions. Students are expected to acquire theoretical and empirical expertise in an area of concentration even as they demonstrate their broader understanding of educational processes and problems. Finally, students are expected to acquire methodological competence in empirical inquiry and to pursue questions that are of interest and import for the student individually as well as a larger educational community. Graduates of the PhD program should be prepared to join the community of professional educators who contribute to our understanding of the complexity of education and to continue inquiring into educational processes and problems wherever they choose to work.

Integrating teaching and research with scholarly training involves the doctoral candidate in the central responsibilities of the professional educator. An advantage of a small department within the College of Arts & Sciences is that students have multiple opportunities to work closely with many of the faculty in the department. In addition, the university offers a climate supporting interdisciplinary conversations across schools, departments, and programs. As Education faculty, we encourage students to pursue learning experiences and contacts with faculty in other programs. Students encounter a diversity of disciplinary perspectives within and outside of the Department of Education in order to provide a broad understanding of the field.

## Biomedical Engineering

Modern biomedical engineers face a far different world than those trained even two decades ago. Explosive advances in our ability to probe and understand molecular and cellular processes and their interconnections now make it imperative that the powers of engineering be brought to bear at ever smaller as well as at systemwide levels. This will not only produce new discoveries at the most fundamental levels but also accelerate the translation of these discoveries into practical applications.

Our vision is that future leaders and lasting impact will arise from successfully integrating engineering concepts and approaches across molecular to whole body levels. Moreover, those also trained to integrate the analytical, modeling and systems approaches of engineering with the complex, and sometimes overwhelming, descriptive details of biology will be uniquely positioned to address new and exciting opportunities. We are committed to educating and training the next generation of biomedical engineers with this vision in mind. Consequently, we have leveraged our existing strengths to build our department around the five research programs representing some of the most exciting frontiers: Biomaterials/Tissue Engineering; Cardiovascular Engineering; Imaging; Molecular, Cellular and Systems Engineering; and Neural Engineering. These areas provide exciting training opportunities for students with a variety of backgrounds and interests.

Students seeking the PhD in Biomedical Engineering enroll in three courses each semester and participate in two or three laboratory rotations in the first year. At the end of that year, they take their oral qualifying exam consisting of a 15-minute presentation on one rotation and oral examination over four fundamental topics of biomedical engineering. During the second and third years, students complete their remaining six courses, perform their one-semester teaching assistantship and begin their thesis research. Required courses include one in mathematics, one in computer science, two in life science, and five in biomedical engineering, distributed among three of the five research areas. By the end of the third year, students must complete their thesis proposal. Average time to degree is approximately 5.5 years.

### Contact Information

**Email:** teasdalek@wustl.edu or elbert@wustl.edu

**Phone:** (314) 935-6164 or (314) 935-7519

**Departmental website:** <http://bme.wustl.edu>

### Chair and Endowed Professor

#### Steven C. George

Elvera and William Stuckenberg Professor and Chair  
MD, University of Missouri  
PhD, University of Washington, Seattle

### Endowed Professors

#### Rohit V. Pappu

Edwin H. Murty Professor of Engineering  
PhD, Tufts University

#### Yoram Rudy

Fred Saigh Distinguished Professor of Engineering  
PhD, Case Western Reserve University

#### Lori A. Setton

Lucy and Stanley Lopata Distinguished Professor of Biomedical Engineering  
PhD, Columbia University

#### Larry Taber

Dennis and Barbara Kessler Professor of Biomedical Engineering  
PhD, Stanford University

#### Lihong Wang

Gene K. Beare Distinguished Professor of Biomedical Engineering  
PhD, Rice University

#### Frank Yin

Stephen F. and Camilla T. Brauer Distinguished Professor of Biomedical Engineering  
MD, University of California, San Diego  
PhD, Applied Mechanics-Bioengineering, University of California, San Diego

### Professors

#### Mark Anastasio

PhD, University of Chicago

#### Jianmin Cui

PhD, State University of New York

#### Daniel W. Moran

Associate Chair for Undergraduate Studies  
PhD, Arizona State University

#### Shelly Sakiyama-Elbert

Professor of Biomedical Engineering on the Joseph and Florence Farrow Endowment  
PhD, California Institute of Technology

### Associate Professors

#### Dennis L. Barbour

MD, Johns Hopkins School of Medicine  
PhD, Johns Hopkins University

#### Donald L. Elbert

Associate Chair for Graduate Studies  
PhD, University of Texas at Austin

#### Vitaly Klyachko

PhD, University of Wisconsin-Madison

**Jin-Yu Shao**

PhD, Mechanical Engineering & Materials Science, Duke University

**Kurt Thoroughman**

PhD, Johns Hopkins University

## Assistant Professors

**Jan Bieschke**

PhD, Max-Planck Institute for Biophysical Chemistry, Germany

**Hong Chen**

PhD, University of Washington

**Kristen Naegle**

PhD, SM, Massachusetts Institute of Technology

**Barani Raman**

PhD, Texas A&M University

**Jonathan R. Silva**

PhD, Washington University

## Lecturer

**Patricia Widder**

MS, Washington University

## Degree Requirements

The department offers programs leading to the doctor of philosophy (PhD) in biomedical engineering and combined MD/PhD degrees. The latter degree is given jointly with the School of Medicine.

The doctoral degree requires a minimum of 72 credits beyond the bachelor's level, with a minimum of 36 being course credits (including the core curriculum) and a minimum of 24 credits of doctoral dissertation research. Generally, students complete the core curriculum and research rotations during their first year. Then, upon successfully passing the qualifying examination, they advance to candidacy and complete the balance of their requirements.

Students pursuing the combined degree must complete the degree requirements for both schools. MD/PhD students typically complete the first two years of the medical school pre-clinical curriculum while also performing one or more research rotations, then the remaining requirements for the doctoral degree, and finally the clinical training years of the medical degree. The department generally gives graduate course credits for some of the medical school courses toward fulfillment of course requirements for the PhD degree. This is arranged on an individual basis between the student, his or her academic adviser and the director of graduate studies.

## Computer Science & Engineering

The Department of Computer Science & Engineering offers PhD programs in Computer Science and in Computer Engineering. Computer Science research encompasses the fundamentals of software and algorithm design, machine learning and bioinformatics, visual and cyber-physical computing, and human-computer interaction. Computer Engineering focuses on the interaction of software and hardware in the design of computing systems and networks. Our research groups have extensive interdisciplinary ties across the university, with collaborations in medicine, science, the humanities, and social work. Recent graduates have accepted research and teaching faculty positions, and research and engineering positions in leading technology companies.

Both PhD programs require a combination of course work, research, and teaching. The course work is often completed early in the program, since students are integrated into research groups in their first year and the program emphasis is on creative research. The program has milestones with both written and oral components that provide structure to the five- to six-year degree. The program considers applicants with either bachelor's or master's degrees and has had successful applicants in the past whose prior training is outside of computer science.

**Phone:** (314) 935-6160  
**E-mail:** [admissions@cse.wustl.edu](mailto:admissions@cse.wustl.edu)  
**Departmental website:** <http://cse.wustl.edu>

## Chair

**Roch Guérin**

Harold B. and Adelaide G. Welge Professor of Computer Science  
PhD, California Institute of Technology  
Networked Systems

## Endowed Professors

**Aaron Bobick**

James M. McKelvey Professor and Dean  
PhD, Massachusetts Institute of Technology  
Computer vision, graphics, human-robot collaboration

**Michael R. Brent**

Henry Edwin Sever Professor of Engineering  
PhD, Massachusetts Institute of Technology  
Systems biology, computational and experimental genomics, mathematical modeling, algorithms for computational biology, bioinformatics

### **Chenyang Lu**

Fullgraf Professor in the Department of Computer Science & Engineering  
PhD, University of Virginia  
Real-time and embedded systems, wireless sensor networks, mobile computing

## **Professors**

### **Jeremy Buhler**

PhD, Washington University  
Computational biology, genomics, algorithms for comparing and annotating large biosequences

### **Shantanu Chakrabartty**

PhD, Johns Hopkins University  
Computer engineering, networked systems, cyber-physical systems and sensing

### **Roger D. Chamberlain**

DSc, Washington University  
Computer engineering, parallel computation, computer architecture, multiprocessor systems

### **Ron K. Cytron**

PhD, University of Illinois at Urbana–Champaign  
Programming languages, middleware, real-time systems

### **Christopher D. Gill**

DSc, Washington University  
Distributed real-time embedded systems, middleware, formal models and analysis of concurrency and timing

### **Raj Jain**

PhD, Harvard University  
Wireless networks, network security, next generation Internet, sensor networks, telecommunications networks, performance analysis, traffic management, quality of service

### **Robert Pless**

PhD, University of Maryland  
Computer vision, medical imaging, sensor network algorithms, citizen science

### **Weixiong Zhang**

PhD, University of California, Los Angeles  
Computational biology, genomics, machine learning and data mining, and combinatorial optimization

## **Endowed Associate Professor**

### **Caitlin Kelleher**

Hugo F. & Ina Champ Urbauer Career Development Associate Professor  
PhD, Carnegie Mellon University  
Human-computer interaction, programming environments, and learning environments

## **Associate Professors**

### **Kunal Agrawal**

PhD, Massachusetts Institute of Technology  
Parallel computing, cyber-physical systems & sensing, theoretical computer science

### **Yixin Chen**

PhD, University of Illinois at Urbana–Champaign  
Mathematical optimization, artificial intelligence, planning and scheduling, data mining, learning data warehousing, operations research, data security

### **Patrick Crowley**

PhD, University of Washington  
Computer and network systems, network security

### **Sanmay Das**

PhD, Massachusetts Institute of Technology  
Design of algorithms for complex environments, computational social science, machine learning

### **Viktor Gruev**

PhD, Johns Hopkins University  
Low power integrated sensory systems, integrated polarization imaging, focal plane spatiotemporal image sensors, current mode image sensors, sensory systems in 3-D fabrication technology, micro/nano fabrication, micro fluidics, and low power analog/digital integrated circuits

### **Tao Ju**

PhD, Rice University  
Computer graphics, visualization, mesh processing, medical imaging and modeling

### **William Richard**

PhD, University of Missouri-Rolla  
Ultrasonic imaging, medical instrumentation, computer engineering

## **Assistant Professors**

### **Yasutaka Furukawa**

PhD, University of Illinois at Urbana-Champaign  
Computer vision and computer graphics

### **Roman Garnett**

DPhil, University of Oxford  
Machine learning and artificial intelligence

### **Brendan Juba**

PhD, Massachusetts Institute of Technology  
Theoretical approaches to artificial intelligence founded on computational complexity theory and theoretical computer science more broadly construed

### Angelina Lee

PhD, Massachusetts Institute of Technology  
Designing linguistics for parallel programming, developing runtime system support for multithreaded software, and building novel mechanisms in operating systems and hardware to efficiently support parallel abstractions

### Benjamin Moseley

PhD, University of Illinois at Urbana-Champaign  
Design and analysis of algorithms, online and approximation algorithms, parallel computing, large data analysis, green computing and algorithmic applications

## Research Faculty

### Sharlee Climer

PhD, Washington University  
Computational biology, artificial intelligence, mathematical modeling, combinatorial optimization, pattern recognition

## Lecturers

### Ruth Miller

PhD, University of Houston  
Data mining, database, bioinformatics

### Marion Neumann

PhD, University of Bonn  
Machine learning with graphs; solving problems in agriculture and robotics

### Douglas Shook

MS, Washington University  
Imaging sensor design, compiler design and optimization

### Todd Sproull

PhD, Washington University  
Computer networking and mobile application development

## Senior Professors

### Jerome R. Cox Jr.

Senior Professor  
ScD, Massachusetts Institute of Technology  
Computer system design, computer networking, biomedical computing

### Mark A. Franklin

Hugo F. and Ina Champ Urbauer Professor of Engineering  
PhD, Carnegie Mellon University  
Computer architecture, systems analysis and parallel processing, storage systems design

### Jonathan Turner

Barbara J. and Jerome R. Cox, Jr. Professor of Computer Science  
PhD, Northwestern University  
Design and analysis of internet routers and switching systems, networking and communications, algorithms

## Professors Emeriti

### Richard A. Dammkoehler

MS, Washington University  
Computer programming theory, information retrieval, computer systems architecture

### Takayuki D. Kimura

PhD, University of Pennsylvania  
Communication and computation, visual programming

### Seymour V. Pollack

MS, Brooklyn Polytechnic Institute  
Intellectual property, information systems

## Degree Requirements

Students can choose to pursue a PhD in Computer Science or Computer Engineering. The requirements vary for each degree. Here are the core requirements:

- Complete 72 credits of regular courses (at least 33 units), seminars (at least 3 units), and research credits (at least 24 units), including 9 units of breadth requirements for both the PhD in Computer Science and Computer Engineering degrees
- Satisfy fundamental teaching requirements by acting as a teacher or course TA, pedagogical teaching requirements by completing a certain number of qualifying pedagogy workshops, and scholarly communication requirements by participating in the Doctoral Student Research Seminar
- Pass milestones demonstrating abilities to understand research literature, communicate orally and in writing, and formulate a detailed research plan. These milestones include an oral qualifying examination, a portfolio review for admission to candidacy, and a dissertation proposal defense, culminating in a dissertation defense.

For more information, visit the Doctoral Program Guide on our website.

## Electrical & Systems Engineering

### Admission Requirements

Admission to the Electrical Engineering and Systems Science & Mathematics Doctoral Programs are decided on an individual basis. Admission directly into the Department of Electrical & Systems Engineering doctoral programs upon completion of the undergraduate degree is available to students who have distinguished themselves in their undergraduate studies.

Strong applicants who are dedicated to completing a doctoral degree are encouraged to apply directly to a doctoral program. Students should apply upon completion of the MS degree and are generally required to have a 3.5 grade point average (85%) and endorsement from the graduate admissions committee.

The minimum requirement to be admitted to the Department of Electrical & Systems Engineering Master of Science in Electrical Engineering program is a 3.0 cumulative grade point average (or 80%) unless the applicant was a part-time student with work experience.

Admission to our Master of Science in Systems Science & Mathematics program is not dependent on a specific undergraduate grade point average, but is based on proof of strength in mathematics courses.

Prospective graduate students should apply online and follow the checklist below to gather supplemental materials:

- Application fee
- Official undergraduate and/or graduate transcripts
- Three letters of recommendation
- Statement of Purpose (required for PhD applicants; suggested for MS applicants)
- GRE scores (electronic copies of applicant scores will be used for evaluation purposes, but official scores will be necessary if admitted)
- TOEFL scores (required for all international applicants)
- Financial Certification (required for all international applicants)

**Contact Person:** Tom Evola  
**Phone:** (314) 935-4577  
**E-mail:** [tomevola@wustl.edu](mailto:tomevola@wustl.edu)  
**Departmental website:** <http://ese.wustl.edu/graduateprograms/Pages/default.aspx>

## Chair

### Arye Nehorai

Eugene and Martha Lohman Professor of Electrical Engineering  
PhD, Stanford University  
Signal processing, imaging, biomedicine, communications

## Associate Chair

### Hiro Mukai

Professor  
PhD, University of California, Berkeley  
Theory and computational methods for optimization, optimal control, systems theory, electric power system operations, differential games

## Endowed Professors

### R. Martin Arthur

Newton R. and Sarah Louisa Glasgow Wilson Professor of Engineering  
PhD, University of Pennsylvania  
Ultrasonic imaging, electrocardiography

### Joseph A. O'Sullivan

Samuel C. Sachs Professor of Electrical Engineering  
PhD, Notre Dame University  
Information theory, statistical signal processing, imaging science with applications in medicine and security, and recognition theory and systems

### Lan Yang

Edward H. & Florence G. Skinner Professor Electrical & Systems Engineering  
PhD, California Institute of Technology  
Nano/micro photonics, ultra high-quality optical microcavities, ultra-low-threshold microlasers, nano/micro fabrication, optical sensing, single nanoparticle detection, photonic molecules, photonic materials

## Professor

### Heinz Schaettler

PhD, Rutgers University  
Optimal control, nonlinear systems, mathematical models in biomedicine

## Associate Professors

### Jr-Shin Li

PhD, Harvard University  
Mathematical control theory, optimization, quantum control, biomedical applications

### Robert E. Morley Jr.

DSc, Washington University  
Computer and communication systems, VLSI design, digital signal processing

## Assistant Professors

### ShiNung Ching

PhD, University of Michigan  
Systems and control in neural medicine, nonlinear and constrained control, physiologic network dynamics, stochastic control

### Zachary Feinstein

PhD, Princeton University  
Financial engineering, operations research, variational analysis

### Humberto Gonzalez

PhD, University of California, Berkeley  
Cyber-physical systems, hybrid dynamical systems, optimization, robotics

### Matthew D. Lew

PhD, Stanford University  
Microscopy, biophotonics, computational imaging, nano-optics

### Jung-Tsung Shen

PhD, Massachusetts Institute of Technology  
Theoretical and numerical investigations on nano-photonics, opto-electronics, plasmonics, metamaterials

**Xuan "Silvia" Zhang**

PhD, Cornell University  
Robotics, cyber-physical systems, hardware security, ubiquitous computing, embedded systems, computer architecture, VLSI, electronic design automation, control optimization, and biomedical devices and instrumentation

**Senior Professors**

**I. Norman Katz**

PhD, Massachusetts Institute of Technology  
Numerical analysis, differential equations, finite element methods, locational equilibrium problems, algorithms for parallel computations

**Paul S. Min**

PhD, University of Michigan  
Routing and control of telecommunication networks, fault tolerance and reliability, software systems, network management

**William F. Pickard**

PhD, Harvard University  
Biological transport, electrobiology, energy engineering

**Daniel L. Rode**

PhD, Case Western Reserve University  
Optoelectronics and fiber optics, semiconductor materials, light-emitting diodes (LEDs) and lasers, semiconductor processing electronics

**Ervin Y. Rodin**

PhD, University of Texas at Austin  
Optimization, differential games, artificial intelligence, mathematical modeling

**Barbara Schrauner**

PhD, Harvard University (Radcliffe)  
Plasma processing, semiconductor transport, symmetries of nonlinear differential equations

**Donald L. Snyder**

PhD, Massachusetts Institute of Technology  
Communication theory, random process theory, signal processing, biomedical engineering, image processing, radar

**Barry E. Spielman**

PhD, Syracuse University  
High-frequency/high-speed devices, RF & MW integrated circuits, computational electromagnetics

**Tzyh Jong Tarn**

DSc, Washington University  
Quantum mechanical systems, bilinear and nonlinear systems, robotics and automation, life science automation

**Professors of Practice**

**Dedric Carter**

PhD, Nova Southeastern University

**Dennis Mell**

MS, University of Missouri-Rolla

**Ed Richter**

BSEE, Virginia Tech

**Senior Lecturer**

**Martha Hasting**

PhD, St. Louis University

**Lecturers**

**Randall Brown**

PhD, Washington University

**Randall Hoven**

MS, Washington University  
MSEE, Johns Hopkins University  
Sensor/Data Fusion, Kalman Filters, navigation, target tracking

**Vladimir Kurenok**

PhD, Belarus State University (Minsk, Belarus)

**Jason Trobaugh**

DSc, Washington University

**Jinsong Zhang**

PhD, University of Miami  
Wireless communication systems, wireless sensor networks, target tracking/data fusion, machine learning/pattern classification

**Research Professor**

**Julius Goldstein**

PhD, University of Rochester  
Auditory system, hearing perception, modeling auditory perception

**Research Associate Professor**

**David Corman**

PhD, University of Maryland  
Cyber Physical Systems (CPS), Security for CPS, Unmanned systems, manufacturing

**Research Assistant Professor**

**Scott Marrus**

MD, PhD, Washington University School of Medicine  
Cardiac electrophysiology

**Professors Emeriti**

**William M. Boothby**

PhD, University of Michigan  
Differential geometry and Lie groups, mathematical system theory

**Lloyd R. Brown**

DSc, Washington University  
Automatic control, electronic instrumentation

**David L. Elliott**

PhD, University of California, Los Angeles  
Mathematical theory of systems, nonlinear difference, differential equations

**Marvin J. Fisher**

PhD, University of Illinois  
Energy conversion, power electronics

**Robert O. Gregory**

DSc, Washington University  
Electronic instrumentation, microwave theory, circuit design

## Degree Requirements

### Graduate Degree Programs

The Department of Electrical & Systems Engineering offers master's-level and doctoral-level degrees in Electrical Engineering and in Systems Science & Mathematics. At the master's level, the programs require 30 credit hours of study and have both a course option and a thesis option. At the doctoral level, both the PhD and DSc degrees are available, which typically require four to five years of full-time study leading to an original research contribution.

Research activity in the department is focused in the following three areas:

- Applied mathematics, systems & control
- Electronics & optics
- Signal processing, imaging & communications

Students working in any of these areas will enjoy the benefits of programs that balance fundamental theoretical concepts with modern applications. In our department, students find ample opportunities for close interactions with faculty members working on cutting-edge research and technology development.

- PhD in Electrical Engineering
- PhD in Systems Science & Mathematics
- DSc in Electrical Engineering
- DSc in Systems Science & Mathematics
- MS in Electrical Engineering
- MS in Systems Science & Mathematics
- MS in Data Analytics and Statistics
- Master of Control Engineering
- MEng in Robotics
- Graduate Certificate in Imaging Science & Engineering
- Student not candidate for degree

Prospective PhD students with previous degrees in engineering who are interested in PhD studies and research in mathematics or statistics are encouraged to apply for PhD studies in Mathematics and Statistics. For more details, visit

<http://wumath.wustl.edu/graduate>.

## Energy, Environmental & Chemical Engineering

The Department of Energy, Environmental & Chemical Engineering (EECE) provides integrated and multidisciplinary programs of scientific education in cutting-edge areas, including the **PhD in Energy, Environmental & Chemical Engineering**. Research and educational activities of the department are organized into four clusters: aerosol science & engineering; engineered aquatic processes; multiscale engineering; metabolic engineering & systems biology. These overlapping clusters address education and research in four thematic areas: energy; environmental engineering science; advanced materials; and sustainable technology for public health and international development. In addition to the core faculty in the department, faculty in the schools of Medicine, Arts & Sciences, Business, Law, and Social Work collaborate to provide students with a holistic education and to address topical problems of interest.

The department is a key participant in the university's Energy, Environment & Sustainability initiative (<http://ees.wustl.edu>) and supports both I-CARES (<http://i-cares.wustl.edu>) and MAGEEP (<http://mageep.wustl.edu>). Major externally funded research centers in the department include the Consortium for Clean Coal Utilization (<http://cleancoal.wustl.edu>), the National Nanotechnology Infrastructure Node (<http://nano.wustl.edu>), and the Photosynthetic Antenna Research Center (<http://parc.wustl.edu>), a USDOE Energy Frontier Research Center.

**Contact Person:** Rose Baxter  
**E-mail:** [rbaxter@wustl.edu](mailto:rbaxter@wustl.edu)  
**Departmental website:** <http://eece.wustl.edu>

### Chair and Endowed Professor

**Pratim Biswas**

Lucy and Stanley Lopata Professor  
PhD, California Institute of Technology  
Aerosol science and engineering, air quality and pollution control, nanotechnology, environmentally benign energy production

### Endowed Professors

**Richard L. Axelbaum**

Stifel and Quinette Jens Professor  
PhD, University of California, Davis  
Combustion, advanced energy systems, clean coal, aerosols, nanoparticle synthesis, rechargeable battery materials, thermal science

**Milorad P. Dudukovic**

Laura and William Jens Professor  
PhD, Illinois Institute of Technology  
Chemical reaction engineering, multiphase reactors, visualization of multiphase flows, tracer methods, environmentally benign processing

**Daniel E. Giammar**

Walter E. Browne Professor of Environmental Engineering  
PhD, California Institute of Technology  
Aquatic chemistry, environmental engineering, water quality, water treatment

## Professors

**William P. Darby**

PhD, Carnegie Mellon University  
Environmental planning and management

**Palghat A. Ramachandran**

PhD, University of Bombay  
Chemical reaction engineering, applied mathematics, process modeling, waste minimization, environmentally benign processing

## Associate Professors

**John T. Gleaves**

PhD, University of Illinois  
Heterogeneous catalysis, particle chemistry

**Young-Shin Jun**

Harold D. Jolley Career Development Associate Professor  
PhD, Harvard University  
Aquatic processes, molecular issues in chemical kinetics, environmental chemistry, surface/physical chemistry, environmental engineering, biogeochemistry, nanotechnology

**Yinjie Tang**

Francis Ahmann Career Development Associate Professor  
PhD, University of Washington in Seattle  
Metabolic engineering, bioremediation

**Jay R. Turner**

DSc, Washington University  
Air quality planning and management; aerosol science and engineering, life cycle assessments

## Assistant Professors

**Rajan Chakrabarty**

PhD, University of Nevada, Reno  
Characterizing the radiative properties of carbonaceous aerosols in the atmosphere; and researching gas phase aggregation of aerosols in cluster-dense conditions

**John Fortner**

I-CARES Career Development Assistant Professor  
PhD, Rice University  
Environmental engineering, aquatic processes, water treatment, remediation, and environmental implications and applications of nanomaterials

**Marcus Foston**

PhD, Georgia Institute of Technology  
Utilization of biomass resources for fuel and chemical production, renewable synthetic polymers

**Cynthia Lo**

PhD, Massachusetts Institute of Technology  
Solar energy conversion, materials, environmental interfaces, catalysis, computational chemistry and molecular modeling

**Tae Seok Moon**

PhD, Massachusetts Institute of Technology  
Metabolic engineering and synthetic biology

**Elijah Thimsen**

PhD, Washington University  
Gas-phase synthesis of inorganic nanomaterials for energy applications, and novel plasma synthesis approaches

**Brent Williams**

Raymond R. Tucker Distinguished I-CARES Career Development Assistant Professor  
PhD, University of California  
Aerosols, global climate issues, atmospheric sciences

**Fuzhong Zhang**

PhD, University of Toronto  
Metabolic engineering, protein engineering, synthetic and chemical biology

## Research Assistant Professor

**Benjamin Kumfer**

DSc, Washington University  
Advanced coal technologies, biomass combustion, aerosol processes and health effects of combustion-generated particles

## Joint Faculty

**Steven George**

Elvera and William Stuckenberg Professor and Chair  
PhD, University of Washington in Seattle  
Tissue engineering; microphysiological systems; vascularizing engineered tissues

**Himadri Pakrasi**

PhD, University of Missouri-Columbia  
Systems biology, photosynthesis, metal homeostasis

**Nathan Ravi**

PhD, Virginia Polytechnic Institute  
Cataract, ocular biomaterials

## Adjunct Faculty

### Robert Heider

MME, Washington University  
Process control and process design

### Timothy Michels

MA, Washington University  
Energy economics, building construction and equipment sciences

### Nicholas J. Nissing

BS, Washington University  
Product development and process design

## Research Associate

### Raymond Ehrhard

BS, University of Missouri-Rolla  
Water and wastewater treatment technologies, process energy management

## Professor Emeritus

### Rudolf B. Husar

PhD, University of Minnesota  
Environmental informatics, aerosol science and engineering

## Lecturer

### Janie Brennan

PhD, Purdue University  
Biomaterials, synthetic biology, engineering education

## Professor of Practice

### James Harlan

PhD, Harvard University, Kennedy School of Government  
Technology development economics and venture finance

## Degree Requirements

### Academic Requirements

Candidates for this degree must complete a total of 72 credits beyond the bachelor's degree. Of these, a minimum of 36 must be graduate course work and a minimum of 30 must be doctoral thesis research units. To be admitted to candidacy, students must have completed at least 18 credits at Washington University, have an overall GPA equal to or greater than 3.25 and pass the qualifying examination. The student must also have completed the research rotations and have selected a permanent adviser.

**Transfer Credits:** At most, 9 graduate credits in a master's program from another university may be counted as transfer credits toward the required 36 units of course work.

**Maximum Research Units per Semester:** At most, 9 units of research units may be taken in a semester.

**Seminar Credits:** The 1-unit EECE seminar course may be taken for graduate course work credit in up to six semesters for a total of 6 units.

**Independent Study Credits:** At most, 3 units of course work may be taken as graduate independent study. An independent study must be entirely separate from work done as part of the graduate thesis research. The student should prepare a proposed plan of study to be completed, and this plan must be described on the Independent Study Petition Form approved by the independent study instructor, student's adviser, Graduate Program Coordinator, and Department Chair for the independent study credits to count toward the 36 required units of course work. This credit will not be counted toward the cumulative GPA for a qualification exam requirement.

**400-level Courses:** Courses must be 500-level graduate courses, except for up to three 400-level courses, provided that they are approved by the Graduate Program Coordinator and Department Chair.

## Thesis Proposal

**(must be completed within 18 months after qualifying exam)**

Following successful completion of the qualifying examination, the students will select a research area and a permanent mentor/adviser. The student and adviser will decide on a suitable problem whereupon the student will prepare a comprehensive written research proposal that includes a thorough survey of the field, a discussion of those areas needing further research, and a tentative but clear definition of the proposed research. Results of preliminary studies or feasibility studies should be included. The format and guidelines of the PhD thesis proposal are included in the last portion of this section. This proposal will be submitted to the Thesis Committee at least one week prior to a Thesis Proposal Examination consisting of an oral presentation and questions before the committee. For students entered since Fall 2012, four of the five must be tenured or tenure-track Washington University faculty; one of these four may be a member of the emeritus faculty. The fifth member must have a doctoral degree and an active research program, whether at Washington University, at another university, in government, or in industry. Three of the five must come from the student's degree program; at least one of the five must not. The committee is appointed by the Dean of the Graduate School upon the request of the Department Chair or Graduate Program Coordinator. Any exceptions to the normal composition of the committee should be discussed with the Graduate Program Coordinator and be approved by the Dean of the Graduate School. The thesis proposal should be successfully presented within 18 months of passing the Qualifying Examination and at least 12 months prior to graduation.

Completion of annual meetings or reports with thesis committee: The annual report can consist of one to two pages of the student's research progress summary.

A student who has passed the Thesis Proposal Examination, completed 30 units of required course work toward the PhD degree and published or submitted at least one peer-reviewed manuscript from the thesis research is eligible to receive an MS degree. The publication and submission of the manuscript must be with the approval of the research adviser. Students must submit their request to receive the MS degree at least one year before the thesis defense.

**The following guidelines are recommended for the PhD Thesis Proposal:**

**1) The main body of the proposal should include:**

- Executive summary (no more than one page)
- Introduction (no more than five pages)
- Research objectives (no more than two pages)
- Preliminary work (no more than five pages in the body of the proposal; additional preliminary data or papers can be included in the Appendices)
- Research plan (no more than 15 pages)
- Timeline (no more than one page)
- References (as needed)

**2) The following Appendices should be included at the end of the proposal:**

- List of courses taken and to be taken with grades
- TA experience
- A short CV of the student highlighting conference presentations and journal papers (published/submitted/to be submitted)
- Copies of papers (optional)

**3) Font:** Times New Roman

**Font size:** no less than 11 points

**Line spacing:** single-spaced

**Page margin:** one-inch margin around the pages

PhD students are referred to the National Science Foundation (NSF) Guidelines for Proposal Writing Document as a reference.

## Teaching Assistant Requirement

All students must serve as a teaching assistant or assist in some teaching activity in the department for at least two semesters prior to graduation; in some cases, a student may be required to serve as a teaching assistant in more than two semesters. The department has in place a fair process to assign students as teaching assistants. This will normally be done after the first year and after having passed the Qualifying Examination. In serving as a teaching assistant, students should meet the Graduate School-wide Teaching Requirement for PhD Candidates;

details of fulfilling teaching requirements are described in the Teaching Requirement Form with Policy Statement on <http://graduateschool.wustl.edu>.

The TA duties may include, but are not limited to: giving an actual lecture in an undergraduate class with the instructor in attendance, introducing/interpreting laboratory exercises, or conducting formal help sessions before exams. TAs will also be expected to hold one-on-one office hours and participate in grading homework assignments and exams. Both the students and the instructor will evaluate each TA's performance, and the Graduate Studies Committee will use these evaluations to determine whether the teaching requirement has been fulfilled for that semester. All the PhD candidates are also required to attend one of the TA-training workshops offered by the Teaching Center for the formal pedagogical training prior to or during their first semester as TAs in EECE.

PhD candidates shall also accumulate teaching experience at the advanced level. Presenting one's research in formal settings to other graduate students and faculty is the best way to fulfill the requirement at this level. Therefore, all PhD candidates who entered the program since Fall 2011 shall give at least two formal presentations, whether at the local level (in the department, the university, or the St. Louis area) or at a national or international conference organized by a professional society. For students entered before Fall 2011, four formal presentations are required. Among the presentations, at least one presentation should be oral at a national or international conference (this last requirement may be waived upon approval of the Graduate Studies Committee).

During the semester, doctoral students will perform teaching assistant duties in addition to the normal course work and research duties that are expected by the research adviser.

## Thesis Defense

Upon completion of the thesis, candidates must present the thesis in a public forum and successfully defend the thesis before their Thesis Committee. Students must submit their completed thesis to the committee at least two weeks prior to the defense. Without the approval of the committee members two weeks in advance, the defense process cannot proceed and the room will not be reserved. The student should also have submitted at least one paper to a peer-reviewed journal prior to defending his or her thesis. Normally students are expected to have at least one paper accepted in a peer-reviewed journal, and at least another paper submitted prior to graduation. Presentation at national conferences is also encouraged. At least four committee members must be present at the defense (including the chair). Members of the Dissertation Defense Committee normally attend in person, but one of the five (or, in case of an emergency, one of the four) members may attend virtually instead. Otherwise, the student must reschedule the proposal/thesis defense. This is based on students who entered the program in/after Fall 2012. Students who entered before

Fall 2012 need one more committee member compared to the requirement of a student who entered Fall 2012.

## Mechanical Engineering & Materials Science

The Department of Mechanical Engineering & Materials Science offers a **PhD** in either **Mechanical Engineering** or **Aerospace Engineering**. The department's research strengths include biomechanics, materials, energy, fluid mechanics, and rotary-wing aerodynamics. Of the 72 semester hours needed to earn a PhD, the department requires its students to earn 36-48 through course work and 24-36 through research. A qualifying exam is given in the third semester. By the fourth semester, the student should present a dissertation proposal that outlines the scope and method of procedure for the PhD research. The dissertation is defended at the end of the research effort. A typical time to PhD after an undergraduate engineering degree is four to five years, but the length of program may vary, depending on the individual and the area of study.

**Contact Person:** Prof. Dave Peters  
**E-mail:** dap@wustl.edu  
**Departmental website:** <http://mems.wustl.edu>

### Chair

**Philip V. Bayly**  
Lilyan and E. Lisle Hughes Professor of Mechanical Engineering  
PhD, Duke University  
Nonlinear dynamics, vibrations, biomechanics

### Associate Chairs

**Katharine M. Flores (Materials Science)**  
PhD, Stanford University  
Mechanical behavior of structural materials

**Kenneth L. Jerina (Mechanical Engineering)**  
Earl E. and Myrtle E. Walker Professor of Engineering  
DSc, Washington University  
Materials, design, solid mechanics, fatigue and fracture

### Endowed Professors

**Ramesh K. Agarwal**  
William Palm Professor of Engineering  
PhD, Stanford University  
Computational fluid dynamics and computational physics

**Thomas G. Harmon**  
Clifford W. Murphy Professor  
PhD, Massachusetts Institute of Technology  
Reinforced and prestressed concrete, structural design, fiber reinforced polymers

**Mark J. Jakiela**  
Lee Hunter Professor of Mechanical Design  
PhD, University of Michigan  
Mechanical design, design for manufacturing, optimization, evolutionary computation

**David A. Peters**  
McDonnell Douglas Professor of Engineering  
PhD, Stanford University  
Aeroelasticity, vibrations, helicopter dynamics

**Shankar M.L. Sastry**  
Catherine M. and Christopher I. Byrnes Professor of Engineering  
PhD, University of Toronto  
Materials science, physical metallurgy

### Professor

**Guy M. Genin**  
PhD, Harvard University  
Solid mechanics, fracture mechanics

### Associate Professors

**Srikanth Singamaneni**  
PhD, Georgia Institute of Technology  
Microstructures of cross-linked polymers

**Jessica E. Wagenseil**  
DSc, Washington University  
Biomechanics

### Assistant Professors

**Parag Banerjee**  
PhD, University of Maryland  
Materials sciences and engineering, nanostructured materials, materials synthesis, and novel devices for storing and harvesting energy

**Spencer P. Lake**  
PhD, University of Pennsylvania  
Soft tissue biomechanics

**J. Mark Meacham**  
PhD, Georgia Institute of Technology  
Micro/Nanotechnologies for thermal systems and the life sciences

**Rohan Mishra**  
PhD, Ohio State University  
Computational materials science

**Amit Pathak**  
PhD, University of California, Santa Barbara  
Biomechanics

## Professors of the Practice

### Harold J. Brandon

DSc, Washington University  
Energetics, thermal systems

### Swami Karunamoorthy

DSc, Washington University  
Helicopter dynamics, engineering education

## Joint Faculty

### Richard L. Axelbaum (EECE)

PhD, University of California, Davis  
Combustion, nanomaterials

### Elliot L. Elson

Alumni Endowed Professor in Biochemistry and Molecular  
Biophysics  
PhD, Stanford University  
Biochemistry and molecular biophysics

### Kenneth F. Kelton (Physics)

Arthur Holly Compton Professor of Arts & Sciences  
PhD, Harvard University  
Study and production of titanium-based quasicrystals and related  
phases

### Eric C. Leuthardt (Neurological Surgery and BME)

MD, University of Pennsylvania School of Medicine  
Neurological surgery

### Matthew J. Silva (Orthopedic Surgery)

PhD, Massachusetts Institute of Technology  
Biomechanics of age-related fractures and osteoporosis

### Larry A. Taber (BME)

Dennis and Barbara Kessler Professor of Biomedical  
Engineering  
PhD, Stanford University  
Biomechanics, mechanics of development

### Simon Tang (Orthopedic Surgery, BME)

PhD, Rensselaer Polytechnic Institute  
Biological mechanisms

### Stavros Thomopoulos (Orthopedic Surgery)

PhD, University of Michigan  
Development, healing and tissue engineering of the tendon-to-  
bone insertion

## Senior Research Associate

### Ruth J. Okamoto

DSc, Washington University  
Biomechanics, solid mechanics

## Senior Professors

### Phillip L. Gould

PhD, Northwestern University  
Structural analysis and design, shell analysis and design,  
biomechanical engineering

### Salvatore P. Sutera

PhD, California Institute of Technology  
Viscous flow, biorheology

### Barna A. Szabo

PhD, State University of New York-Buffalo  
Numerical simulation of mechanical systems, finite-element  
methods

## Senior Lecturer

### Jerry W. Craig

MS, Pittsburg State University  
Computer aided design

## Lecturers

### Emily J. Boyd

PhD, University of Texas at Austin  
Thermo fluids

### H. Shaun Sellers

PhD, Johns Hopkins University  
Mechanics and materials

## Adjunct Instructors

### Ricardo L. Actis

DSc, Washington University  
Finite element analysis, numerical simulation, aircraft structures

### Carl A. Baggett

BS, University of Missouri-Columbia  
Design

### Thomas L. Bever

BS, Washington University  
Design, mechanical systems

### John D. Biggs

MEng, Washington University  
Thermal science

### Andrew W. Cary

PhD, University of Michigan  
Computational fluid dynamics

### Richard S. Dyer

PhD, Washington University  
Propulsion, thermodynamics, fluids

### John M. Griffith

BS, Washington University  
Manufacturing

**Hanford Gross**

BS, Washington University  
Engineering project management

**Raimo J. Hakkinen**

PhD, California Institute of Technology  
Aerodynamics, experimental methods in fluid dynamics

**Adetunji Onikoyi**

PhD, University of California, Santa Barbara  
Thermo sciences

**Rigoberto Perez**

PhD, Purdue University  
Fatigue and fracture

**Dale M. Pitt**

DSc, Washington University  
Aeroelasticity

**Gary D. Renieri**

PhD, Virginia Polytechnic Institute and State University  
Structural applications, composite materials

**Frederick W. Roos**

PhD, University of Michigan  
Aerodynamics, fluid dynamics

**Hiroshi Tada**

PhD, Lehigh University  
Solid mechanics

**Michael C. Wendl**

DSc, Washington University  
Mathematical theory and computational methods in biology and engineering

## Laboratory and Design Specialist

**Mary K. Malast**

DSc, Washington University  
Materials science

## Professors Emeriti

**Wallace B. Diboll Jr.**

MSME, Rensselaer Institute of Technology  
Dynamics, vibrations, engineering design

**Paul C. Paris**

PhD, Lehigh University  
Classical mechanics, solid mechanics, dynamics, fracture mechanics, stochastic processes

## Degree Requirements

### Policies & Regulations

A key objective of the doctoral program is to promote cutting-edge multidisciplinary research and education in the areas of Mechanical Engineering & Materials Science. The doctoral student works in conjunction with his or her adviser in designing

their program of study and research project. Students are selected for admission to the program by a competitive process, and they typically start in the fall semester. On arriving at Washington University in St. Louis (WUSTL), the student will be advised by the temporary adviser on all procedural issues. The student will choose a permanent adviser by the end of the first year of residency in the program.

### The following is a brief summary of the requirements for doctoral students:

- 1) Pass the qualifying exams. Qualifying exams should be taken by the end of the third semester.
- 2) Prepare and defend a research proposal. The research proposal should be defended by the end of the fifth semester.
- 3) Write and successfully defend the doctoral dissertation.
- 4) Complete a minimum of **36** credits of course work, and a minimum of **24** credits of doctoral research; total of **72** credits to earn the PhD degree.
- 5) Satisfy the applicable teaching requirements of the Graduate School.

### Qualifying Examination

The qualifying examination should be taken no later than the third semester of the doctoral program.

### Thesis Proposal

The thesis proposal should be defended within one year of the qualifying examination. The student will submit a comprehensive written research proposal to his or her doctoral committee. The requirements for the doctoral committee are listed (under Dissertation) and on the Graduate School website (<http://graduateschool.wustl.edu>). The presentation will include a thorough survey of the field, a discussion of those areas in need of further research and a tentative but clear definition of the problem on which the student intends to focus the dissertation.

### Degrees Offered

The Department of Mechanical Engineering & Materials Science offers the following doctoral degrees:

- PhD in Mechanical Engineering
- PhD in Aerospace Engineering
- DSc in Mechanical Engineering, Aerospace Engineering, or Materials Science

The Doctor of Science (DSc) has similar requirements to the PhD but without the teaching requirement. For a list of differences, visit <http://mems.wustl.edu/graduateprograms/Documents/DoctoralComparisonSection.pdf>.

- One may also pursue a PhD in Materials Science — through the Institute of Materials Science & Engineering (IMSE) — but work with professors from the Department of

Mechanical Engineering & Materials Science. For details on this program, visit: <http://imse.wustl.edu/program>.

For more information on MEMS PhD degrees, visit: <http://mems.wustl.edu/graduateprograms>.

## Requirements for PhD Degree

### Academic Requirements

Candidates for this degree must complete a total of 72 credits beyond the bachelor's degree. Of these, a minimum of 36 must be graduate course work and a minimum of 24 must be doctoral thesis research units. To be admitted to candidacy, students must have an overall GPA greater than 2.75 and pass the Qualifying Examination.

The normal load for full-time graduate students in engineering is 9-12 units per semester including research credits. The course content and load must be discussed with and approved by the student's adviser. Students who are employed full time, either on or off campus, are limited to a maximum of 6 units per semester, except during their doctoral residency when they must register for 9 units.

**Transfer Credits:** At most, 24 graduate credits in a master's program from another university may be counted as transfer credits toward the required 36 units of course work. All transferred credit must be approved by the department chair as appropriate engineering or science courses, not used to complete the BS degree of the student, and be completed with a grade B or better.

**Maximum Research Units per Semester:** At most, 9 units of research units may be taken in a semester.

**Seminar Credits:** The zero-unit MEMS 501 seminar course must be taken every semester.

**Independent Study Credits:** At most, 3 units of course work may be taken as graduate independent study. An independent study must be entirely separate from work done as part of the graduate thesis research. The student should prepare a proposed plan of study to be completed, and this plan must be described on the Independent Study Petition form approved by the independent study instructor, student's adviser, Director of Graduate Studies, and department chair for the independent study credits to count toward the 36 required units of course work.

**400-level Courses:** A maximum of 6 units of 400-level courses are allowed, and these must be from courses not required for the BS degree.

**Residency:** The residency requirements for the PhD are:

- (1) that each student must earn at least 48 semester hours of the required 72 at Washington University and
- (2) that each student must spend at least one academic year registered for full-time credits (9-12 units in the fall followed

by 9-12 units in the spring) at Washington University. Any exceptions to these requirements must be approved by the Dean of the Graduate School. All PhD programs prefer that students remain full-time and in residence throughout their work toward the degree.

### Teaching Requirement

All students must assist in some teaching activity in the department for at least two semesters prior to graduation. If specified as a condition for financial support, a student may be required to serve as a teaching assistant in more than two semesters. Students should accumulate 14 hours of teaching experience at the basic level. This can be accomplished in many ways including: giving an actual lecture in an undergraduate class; conducting discussion sections; introducing/interpreting laboratory exercises; or conducting formal help sessions. Students will also need to accumulate four hours of teaching experience at the advanced level. An example of this would be presenting a paper at a conference or teaching one's research at a regularly-scheduled colloquium or seminar that is attended by other graduate students and faculty.

In serving as a teaching assistant, students should meet the Graduate School-wide Teaching Requirement for PhD Candidates; details of fulfilling teaching requirements are described on the Graduate School website (<http://graduateschool.wustl.edu>).

### Dissertation

The candidate must submit a satisfactory dissertation that involves independent, creative work in an area of specialization and that demonstrates ability for critical and constructive thinking. It must constitute a definite contribution to knowledge in some field of engineering or applied science. The research used as a subject of the dissertation must have been performed under the supervision of a member of the faculty of the School of Engineering & Applied Science. A copy of the rules governing off-campus research may be obtained from the student's adviser.

The candidate must defend the dissertation during a final oral examination by an examining committee to be nominated by the adviser and approved by the Director of Graduate Studies. The committee will consist of five members all with doctoral degrees:

- 4 from WUSTL
- 3 from MEMS
- 1 from outside MEMS

### Financial Assistance

#### Research Assistants

Research assistantships are funded directly from grants and contracts. They are normally awarded to students who have made a commitment to a particular research area and who, by virtue of their academic background and record, will contribute significantly to the research project. The department strives

to place all full-time students on research projects as early as possible. For this reason, students must choose a research area and a research adviser before the end of their first year of residence.

Research assistants are paid a regular monthly stipend. During the academic year, a research assistant is considered to be employed half-time on a research project and, as such, is normally not permitted to register for more than 9 hours of graduate credit per semester after the first year. A minimum of 20 hours of work per week is required on the research project. However, research assistants are typically expected to devote more than this minimum effort to research; the student's diligence and productivity are important factors in renewal of research assistantships. The research adviser may terminate a research assistantship for unsatisfactory performance.

Research assistantships are continued during the summer and are renewable for the next year at the discretion of the research adviser. Summer appointments are paid at the same rate as during the academic year, but full-time effort (a minimum of 40 hours per week) is expected.

### **Tax Liability**

The taxability of the various types of awards described above is determined by current policy of the U.S. Internal Revenue Service (IRS). It is prudent to assume that all stipends are fully taxable and that tax will be withheld. Questions concerning an individual's tax liability must be referred to the IRS.

### **Outside Employment**

Holders of fellowships, traineeships and assistantships are required to devote full-time effort to graduate studies. They are not permitted to engage in any outside employment without permission of the adviser and department chair.

### **Time Off**

Graduate students receiving financial support are expected to commit themselves fully to their studies and research. Intersession periods listed in the University academic calendar denote time when classes are not in session, and graduate students are expected to devote themselves full-time to their research during these periods.

Students on full support are permitted to take off a maximum of two weeks during the calendar year for holidays, interview trips, etc. Additional time off can be arranged in discussion with the research adviser, but it may result in a reduction of the student's stipend. During the first year in the program when students do not have a permanent adviser, they should consult their first-year adviser to schedule any time off. Absence of research assistants must be scheduled so as not to impede the progress of an ongoing research project and should be approved by the research adviser.

Full-time summer appointments do not include paid vacation. An appointment may be prepared for periods of less than three months to allow for planned vacations.

## **Other Policies**

### **Seminars**

Each year the department sponsors or participates in a series of seminars by visiting lecturers and WUSTL faculty and students. All full-time graduate students are required to enroll in MEMS 501-Graduate Seminar, which is a pass/fail course carrying 0 units. A passing grade is required for each semester for all full-time students and is earned by regular attendance at these events.

### **English**

The Department of English offers the degrees of Master of Arts and Doctor of Philosophy in English and American Literature and Doctor of Philosophy in English and Comparative Literature. Candidates for admission apply to the PhD program; we do not accept students for a terminal AM. The PhD is a six-year program.

During their first two years students take courses (one required and the others elective) with the aim of acquainting themselves with a broad range of literary periods and genres, critical methodologies, research approaches, and pedagogical styles. Students have no teaching responsibilities in their first two years; they receive their AM at the end of their second year, when their course work is completed. The department also requires that all doctoral candidates have a minimum of competency in one foreign language (ancient or modern), though students working in certain historical areas or writing on special dissertation topics may need additional language study. Language classes are usually taken during the summer after year one or two, but in some cases they may also be taken during the academic year.

During their third and fourth years, students begin teaching and read for their oral major field exam. By the end of the fourth year, they will have passed this exam, submitted a dissertation prospectus, and arranged for a dissertation interview, thus completing all the requirements for the PhD except the dissertation itself. In their fifth year, students research and begin to write the dissertation, while teaching one class per semester; in their sixth year, funded by a dissertation fellowship that frees them from teaching responsibilities, they complete and defend the dissertation.

Students who enter the PhD program with a master's in English from another institution initially follow the same program as students entering with a bachelor's. After their third semester, course work from their previous degree will be reviewed by the Director of Graduate Studies and, when appropriate, credit will be applied toward their PhD. Students entering the program with a relevant master's degree may be able to complete the PhD in

five years, though they are eligible for full funding through year six.

Students who wish to receive the combined PhD degree in English and Comparative Literature may do so by fulfilling that program's requirements for combined degrees. For information, please review Comparative Literature's departmental website.

**Contact Person:** Sarah Hennessey  
**Phone:** (314) 935-5120  
**E-mail:** sehennes@wustl.edu  
**Departmental website:** <http://english.artsci.wustl.edu/graduate>

## Chair

### Wolfram Schmidgen

Professor  
PhD, University of Chicago

## Endowed Professors

### Gerald L. Early

Merle Kling Professor of Modern Letters  
PhD, Cornell University

### Wayne Fields

Lynne Cooper Harvey Distinguished Professor of English  
PhD, University of Chicago

### Vincent Sherry

Howard Nemerov Professor in the Humanities  
PhD, University of Toronto

### Steven Zwicker

Stanley Elkin Professor in the Humanities  
PhD, Brown University

## Professors

### David Lawton

FAAH, PhD, University of York

### Joseph Loewenstein

PhD, Yale University

### William Maxwell

PhD, Duke University

### Robert Milder

PhD, Harvard University

### Anca Parvulescu

PhD, University of Minnesota

### Vivian Pollak

PhD, Brandeis University

### Richard Ruland

PhD, University of Michigan

### Rafia Zafar

PhD, Harvard University

## Associate Professors

### Miriam Bailin

PhD, University of California, Berkeley

### Guinn Batten

PhD, Duke University

### J. Dillon Brown

PhD, University of Pennsylvania

### William McKelvy

PhD, University of Virginia

### Steven Meyer

PhD, Yale University

### Jessica Rosenfeld

PhD, University of Pennsylvania

### Julia Walker

PhD, Duke University

## Assistant Professors

### Musa Gurnis

PhD, Columbia University

### Long Le-Khac

PhD, Stanford University

### Melanie Micir

PhD, University of Pennsylvania

### Abram Van Engen

PhD, Northwestern University

## Faculty Associate

### Dillon Johnston

PhD, University of Virginia

## Senior Lecturers

### Joan Brockmann

PhD, St. Louis University

### Bethany Daniels

MA, University of Missouri–St. Louis

### Kathleen Drury

MA, Washington University

### Amy Pawl

PhD, University of California, Berkeley

### Paul Rosenzweig

PhD, University of Michigan

## Professors Emeriti

### Richard Hazelton

PhD, Rutgers University

### Naomi Lebowitz

PhD, Washington University

**Carter C. Revard**  
PhD, Yale University

**Daniel Shea**  
PhD, Stanford University

## Degree Requirements

The AM/PhD Program in English at Washington University in St. Louis is a six-year course of study leading to a doctorate in English and American literature. Students take a minimum of twelve elective 3-credit courses at the 400 or 500 level, along with two compulsory classes: Introduction to Graduate Study, and the Practicum in the Teaching of Composition. Aside from these two classes, there are no specific course requirements, though students must take at least two courses in historical periods before 1780 (not in the same period) and at least two in historical periods after 1780 (again, not in the same period).

For students entering in the fall semester of 2014 and after, at least six of 12 elective courses must be 500-level, graduate-only seminars (four such 500-level seminars must be taken by students who entered in the fall of 2013 or earlier). Students are encouraged to enroll in courses of special interest in other departments or programs whether or not they are cross-listed with the English department, but at least eight of their 12 electives must be home-based English courses, including (save in exceptional cases) all of their seminars.

It is assumed that all entering graduate students are working toward a PhD; the English department does not admit students aiming for a terminal AM. The AM is awarded during the course of study when a student has completed 36 credit hours, usually at the end of the second year. To satisfy the Graduate School requirement of demonstrated excellence, candidates for the AM may also be asked to submit a graded seminar essay (or the equivalent) for review by the English Graduate Committee.

Students entering the program with an AM degree in hand normally follow the standard first-year curriculum. At the end of their third semester, the Director of Graduate Studies will review their AM work taken elsewhere and determine how many credits (normally a limit of 9-12) may be applied toward the PhD at Washington University. Although students receiving transfer credit may be able to complete the PhD in fewer than six years, it is to their advantage to enter the program as first-year students since this ensures them four full semesters of study without teaching responsibilities. If, after three semesters and the review of transfer credit, the Director of Graduate Studies determines that the student has fulfilled the course requirements for the PhD, the student may elect not to take classes in semester four and to begin work on the Major Field reading instead; his or her 6 credits of Major Field preparation in semester four will complete the requirements for the Washington University AM degree.

Altogether, the Graduate School requires **72 credits** beyond the BA for the PhD. During the first seven semesters, up to 57

credits are earned by course work, independent study, and directed reading: more precisely, 13 courses and 39 credits in years one and two; the Practicum in Teaching and 3 research credits in the fall of year three; 6 credits of directed reading in the spring of year three; and 6 credits of directed reading in the fall of year four. The remaining credits are awarded as research credits.

## Film and Media Studies

The program in Film and Media Studies (FMS) provides students who are interested in the history, criticism, and theories of moving image-based visual culture, from the 19th through the 21st centuries, an opportunity to extend their formal intellectual training and explore film and electronic media as evolving global phenomena. The Certificate as well as the master's degree in FMS advance a student's scholarly understanding of all forms of the moving image and their artistic, cultural, industrial, philosophical, political, and social implications.

The Certificate is by application and is open to PhD students in other academic units. It consists of 15 hours of FMS course work. Six hours of the certificate may be counted in the student's PhD requirements. The master's degree emphasizes multiple approaches of academic study that may lead to curating, researching, teaching, and other professional activities centered on film and other moving image media. Master's students must fulfill the basic requirements for the AM degree as set forth in this Graduate School catalog (p. 14) and complete a course of study consisting of 36 hours of credit. All FMS master's degree students take a comprehensive exam. There is no thesis option in this degree.

Students already enrolled at Washington University in St. Louis with a major in film and media studies may wish to consider the master's program as part of an accelerated AB/AM option. Washington University students who are admitted in the combined AB/AM program may have up to 9 hours of FMS course credit at the 400 level considered for application to AM degree requirements. Students who are currently enrolled as undergraduates at Washington University and are seeking the combined AB/AM degree should use the standard application form of the Graduate School to apply.

Students applying to the Film and Media Studies master's from outside the university should follow the standard application procedures of the Graduate School of Arts & Sciences (<http://graduateschool.wustl.edu/forms>). Graduate Record Exam scores indicating an aptitude for graduate study are required, as well as strong letters of recommendations from three instructors who can speak to the applicant's academic skills relevant to graduate study in film and media studies. Applicants who have completed an undergraduate degree and show outstanding promise in writing about film and media but do not have formal film/media studies training may be admitted. All applicants to the master's program in FMS should have a strong academic foundation in critical writing and thinking. At least one writing sample of no

less than 3,000 words is required and a letter of approximately 500 words describing the candidate's interest in film and media studies and how her or his intellectual background has prepared the applicant for graduate study in FMS.

All applicants to the Certificate, AB/AM, or master's degree in FMS are welcome to consult with the Director of Graduate Studies about the application process.

**Phone:** (314) 935-4056  
**E-mail:** [gstudlar@wustl.edu](mailto:gstudlar@wustl.edu)  
**Departmental website:** <http://fms.artsci.wustl.edu/graduate>

## Director

### Gaylyn Studlar

David May Distinguished University Professor  
PhD, University of Southern California

## Professor

### William Paul

PhD, Columbia University

## Assistant Professors

### Colin Burnett

PhD, University of Wisconsin-Madison

### Diane Wei Lewis

PhD, University of Chicago

## Senior Lecturer

### Richard Chapman

## Postdoctoral Fellow

### Michelle Kelley

PhD, New York University

## Degree Requirements

### Certificate Program

*Required courses for the graduate certificate:*

#### Core Courses (9 credits):

- L53 Film 501 Advanced Moving Image Analysis and Criticism (3 credits)
- L53 Film 421 Film Historiography **OR** L53 Film 502 Seminar in History of Film and/or Electronic Media (rotating topics) (3 credits)

One of the following theory courses is required as part of the core:

- L53 Film 419 Theories of Mass Media (3 credits)
- L53 Film 420 Film Theory (3 credits)

- L53 Film 450 American Film Genres (genre theory) (3 credits)
- Any 400- or 500-level course in film or electronic media theory.

Certificate students also have two electives (6 units) that may be taken at the 400 or 500 level and developed in an advising plan, subject to approval of the Film and Media Studies adviser and of the Director of Graduate Studies of the student's home unit:

#### Two Electives (6 credits):

Each 3 credit elective course in Film and Media Studies must be at the 400 level or higher.

Elective: Courses originating in Film and Media Studies or cross-listed with Film and Media Studies, or offered in another unit and approved by the student's Film and Media Studies adviser.

A student may choose to take one Independent Study of 3 credits (L53 Film 500) with a Film and Media Studies faculty member as an elective. This study should relate to a specialized topic mutually agreed upon by the student, his or her Film and Media Studies adviser and the Chair of the Graduate Certificate Program. Although students are expected to benefit from elective courses offered by Film and Media Studies core and affiliated faculty, they may take other film-related courses as may be offered by other departments and by faculty not affiliated with Film and Media Studies. To be included in the graduate certificate course work, classes that fall within this category require approval by the student's adviser in Film and Media Studies and her or his home unit's Director of Graduate Studies.

## Master's Program

### Course of Study

Students must fulfill the basic requirements for the AM degree as set forth in this Graduate School catalog (p. 14). In addition, AM candidates must take the course of study described below that consists of 36 hours of credit and a comprehensive examination.

There is one course of study for the AM in Film and Media Studies. There is no thesis option in this degree. Students complete 36 semester hours (12 courses) defined by the three areas listed below. During their final semester of course work, students take a comprehensive written examination and meet with the examining committee for an oral defense. The examining committee will consist of the DGS, the student's adviser, and one other faculty member, core or affiliated in Film and Media. These exams are based on reading and screening lists as well as on course work. The student must meet expectations for broad knowledge of the field appropriate for a master's degree student in the humanities. Normally, if the student expects a May graduation date, then he or she must complete the examinations by April 7 of the spring semester. All course work should be completed by the end of the semester

in which the examination is scheduled. Students should consult with the Director of Graduate Studies (DGS) in their first semester in the program to obtain the master's students' reading and screening list and consult regularly with their adviser. Students entering the program from outside the university should expect to take two years to finish the master's degree if they take 9 hours per semester, less time if they take more.

### **Area I: Required Courses (15 hours total)**

Core subjects of study:

1. Visual Analysis
2. Moving Image Theory
3. Historiography of the Moving Image
4. Television & Digital Studies
5. Cinema and Television Beyond the United States

***The requirements for Area I may be fulfilled through the following course work:***

#### **Visual Analysis**

Film 501 Advanced Moving Image Analysis and Criticism

#### **Moving Image Theory**

Film 419 Theories of Mass Media or Film 420 Film Theory or Film 502 Seminar in film and media theory (rotating topics)

#### **Historiography of the Moving Image**

Film 421 Film Historiography or Film 423 Histories of Media Convergence

#### **Television and Visual Studies**

Film 503 Seminar in Television Studies (rotating topics) or Film 504 Seminar in Digital Studies (rotating topics) or any 400- or 500-level FMS course in television or electronic media.

#### **Cinema and Television beyond the United States**

Any 400- or 500-level national, regional, or transnational cinemas or television studies course offered in FMS.

### **Area II: Electives (18 hours)**

In addition, during their matriculation, students must take 18 hours of credit at the 400 or 500 level to satisfy electives for the master's in Film and Media Studies. In choosing electives, students may select any 400- or 500-level Film and Media course not used for Area I. In addition, they can select up to 6 hours in Film 500 Independent Study that is in a study area of film and media not ordinarily covered by regular course offerings. Any Film 500 must be approved by the DGS. Six hours of courses at the 400 or 500 level offered through other departments or programs that are relevant to the degree's

intellectual focus may also be taken to satisfy this area with the permission of the DGS.

### **Area III: Practicum in Film and Media Studies**

Students must complete one course (3 credits) that consists of professional experience that brings to bear academic knowledge and skills associated with the study of Film and Media Studies. Every student presents a written proposal/plan to the DGS and to the faculty mentor/adviser they select for their practicum. Both faculty must give permission to the plan.

The practicum may take a number of forms, but in every case, the experience must be planned in a way that contributes to the student's professional development. It might consist of work curating films for a screening or mini-festival accompanied by screening notes, a website, or other forms of writing that enhance the academic value of the event. The student might organize a scholarly symposium or lecture to further the understanding of a particular aspect of the moving image at Washington University. The practicum may also consist of archival or curatorial work in film, television or other forms of the moving image (such as digital art) at an archive, museum, or other nonprofit organization (such as a film festival), in which the student will have an on-site supervisor.

Students interested in combining primary research with their development as a "public intellectual" might write a book proposal and develop a bibliography in anticipation of writing a book or they may develop a website with consistent and significant critical, historical or theoretical usefulness to those interested in film and media studies, such as one that offers critical analyses of current films, bibliographic information addressing one area of research in the field, etc. The practicum student might participate in other activities related to moving image exhibition or archival preservation or to grant application writing. The practicum may also be oriented toward teaching, with the creation of a course syllabus and sample lectures delivered by the graduate student in a venue organized by faculty.

Students may initiate other projects, but any practicum requires a faculty mentor and, in circumstances in which there is a collaborating organization, a letter of endorsement of the practicum from the student's on-site supervisor at the organization. This supervisor will also provide a letter upon completion of the practicum detailing the student's work and its quality. The faculty adviser will award the grade for the practicum.

### **Germanic Languages and Literatures**

The Department of Germanic Languages and Literatures offers a comprehensive program in the language, literature, and culture — past and present — of Germany and German-speaking

countries. Our faculty pursue a multiplicity of approaches in their research and offer seminars that provide a healthy balance of theory and the history of German literature and culture. The department offers numerous opportunities for interdisciplinary study, including a one-of-a-kind joint PhD program with Comparative Literature and an innovative certificate program that gives students the option of developing an expertise in one of four associated fields.

Both faculty and students also teach and do research in a wide range of related disciplines, including Art History, Comparative Literature, European Studies, Film & Media Studies, Medieval and Renaissance Studies, Religious Studies, and the Women, Gender, and Sexuality Studies Program.

We consider international exchange to be a crucial component of graduate education. We maintain an exchange agreement on all levels (faculty, graduate, undergraduate) with the University of Tübingen, in addition to graduate student exchanges with the universities of Berlin, Cologne, and Munich. These arrangements enable us to guarantee a year abroad for all of our PhD candidates while at the same time enriching our program by bringing German exchange students to campus to study and teach alongside the full-time students in our program. Exchange is further facilitated by the Max Kade Center, which, in addition to numerous other activities, plays host each spring to a writer- and a critic-in-residence. The department also invites a distinguished visiting professor to campus every other year.

Departmental faculty are known across campus and across the discipline for their close mentoring of graduate students, who are also integrated into the department through their participation in numerous activities, from the graduate student symposium and the department's biennial international symposium to outreach programs like German Day. We also give close attention to teacher training through our unique pedagogy internships, through recurring workshops, and through a classroom mentoring program which ensures that all teaching assistants receive feedback and advice from a large number of faculty members. Graduate students have the opportunity to teach in our undergraduate German program at all levels, in both German and English, and many also have a chance to teach courses or sections in other programs.

The combination of our extremely competitive funding packages and the low cost of living in St. Louis ensures that students have the resources they need to stay focused on their academic work. As a consequence, our graduate students not only produce first-rate dissertations, they also go on to accept positions at top research universities and liberal arts colleges across the country.

Their success is facilitated by the outstanding research collections available at the Washington University library, including the Collection of Contemporary German Literature, as well as the Suhrkamp/Insel Collection. Other resources include the Gontard Collection (18th to 20th centuries) in the

Rare Book Collection of Olin Library, the internationally famous Reformation Collection at Concordia Seminary, and the Vatican Manuscript Collection at St. Louis University. The Saint Louis Art Museum and the Washington University Mildred Lane Kemper Art Museum have extensive holdings in German expressionist and contemporary art.

For questions concerning the graduate application process or to request a brochure please contact our Student Coordinator, Empress Sanders, or email our Director of Graduate Studies, Professor Jennifer Kapczynski.

**Contact Person:** Empress Sanders  
**Phone:** (314) 935-4276  
**E-mail:** esander@wustl.edu  
**Departmental website:** <http://german.wustl.edu/graduate>

## Chair

### Matt Erlin

Professor of German  
PhD, University of California, Berkeley  
18th- and 19th-century German Literature and Culture, Aesthetic Theory, Economics and Literature, Philosophies of History, Urban Culture

## Endowed Professors

### Paul Michael Lützeler

Rosa May Distinguished University Professor in the Humanities;  
Director of Max Kade Center  
PhD, Indiana University  
Contemporary Discourses in the Humanities, Contemporary German Literature, Transatlantic cultural relations, Exile Literature 1933-45, German and European Romanticism, Literature and Culture of the 1920s

### Lynne Tatlock

Director, Comparative Literature; Hortense and Tobias Lewin Distinguished Professor in the Humanities  
PhD, Indiana University  
Book History, Gender Studies and Women's Writing, History of the Novel, Literature and Medicine, Literature and Society, Nationalism, Reading Cultures, Regionalism, Translation and Cultural Mediation, Reception

### Gerhild Williams

Vice Provost; Barbara Schaps Thomas and David M. Thomas Professor in the Humanities in Arts and Sciences; Associate Vice Chancellor for Academic Affairs  
PhD in Comparative Literature, University of Washington  
Early Modern German and French Literature, Magic/Daemonologies/Witch Theory, Media and Culture, Reformation Movements, Translation Theory and Practice, Travel Narratives, Volksbuch/Novel

## Associate Professors

### Jennifer Kapczynski

Director of Graduate Studies  
PhD, University of California, Berkeley  
19th- to 21st-century Literature, Film Studies, Gender Theory,  
Nationalism, War & Representation

### Erin McGlothlin

Director of Undergraduate Studies  
PhD, University of Virginia  
Holocaust Literature and Film, German-Jewish Literature,  
Postwar and Contemporary German Literature, Narrative  
Theory, Autobiography, the Graphic Novel

## Assistant Professors

### Kurt Beals

PhD, University of California, Berkeley  
20th- and 21st-century German Literature and Culture, Poetry,  
Translation Theory and Practice, Experimentalism and Avant-  
Gardes, Digital Media

### Caroline Kita

PhD, Duke University  
19th- and 20th-century German and Austrian Literature and  
Culture, German-Jewish Studies, Aesthetic Philosophy and  
Religion, Music and Narrative, the Radio Play (Hörspiel) in  
German culture

### Christian Schneider

PhD, Heidelberg University  
Medieval and Early Modern German Literature, Medieval Courtly  
Culture, Narrative Theory, Cultural History of Knowledge and  
Science, Textual Editing

## Professors Emeriti

### James Fitzgerald Poag

PhD  
Early and High Middle Ages, History of the German Language,  
Medieval Bible Exegesis, Medieval Law and Literature, Medieval  
Romance, Middle High German, Mysticism

### Egon Schwarz

Rosa May Distinguished Professor Emeritus in the Humanities  
PhD  
19th-century Literature, Austrian Literature, Fin-de-siècle,  
Märchen, Modern Literature, Utopia

## Degree Requirements

### Graduate Program Requirements

A summary of program requirements is provided below.

German exchange students should contact Empress Sanders for  
information on the exchange program.

## Course Work

PhD candidates must complete 63 hours of course work  
(including 36 AM-level credits), and 9 hours of dissertation credit  
for a total of 72 units of graduate credit. 12 of the 63 credits may  
be taken in related fields outside the department.

Each student must take courses in the full range of German  
literature and culture, to be chosen in consultation with the  
Director of Graduate Studies. The following courses are required  
(exceptions are only possible upon review by the Graduate  
Committee):

- German 453: *Theories of Literary and Cultural Analysis* (3 units)
- German 456: *Introduction to Middle High German Language and Literature* (3 units)
- German 457: *Introduction to Linguistics and the Structure of German* (3 units)
- German 5051: *Introduction to the Teaching of German* (1 unit)
- German 5052: *Teaching Practicum* (1 unit)
- German 5053: *Seminar in Theories of Foreign Language Pedagogy* (2 units)
- German 5061: *Apprenticeship in the Teaching of Literature and Culture I* (1 unit)
- German 5062: *Apprenticeship in the Teaching of Literature and Culture II* (1 unit)

In addition, students are required to take one additional course in  
German literature prior to 1700.

These rules regarding required courses to be taken at  
Washington University apply to students joining the department  
with a BA. Students entering with an AM degree may already  
have fulfilled some of these requirements. The fulfillment of  
Washington University requirements with course work completed  
elsewhere should be discussed with the Director of Graduate  
Studies who will make a determination.

## Interdisciplinary Studies

Graduate students may wish to take courses in areas other  
than German. With this in mind, the program is designed so  
that PhD candidates may take a total of 12 credits in other  
areas. Of special interest are graduate offerings in Art History,  
Comparative Literature, English, Film and Media Studies,  
History, Music, Philosophy, Romance Languages, and Women,  
Gender, and Sexuality Studies.

Students interested in completing one of our interdisciplinary  
certificates are generally required to complete five additional  
seminars, two of which may also be counted toward the 63 units  
of departmental credit.

## Examinations

### Master's Examination

Students who enter with a BA must complete an oral and written master's examination at the end of their second year. A student's performance on the exam serves the faculty as one important element in deciding whether the student will receive permission to proceed with his or her graduate studies. The department does not offer a terminal master's degree.

For the **AM Reading List (as of April 2013)**, please view the document "AM Reading List" (PDF) or visit our website (<http://german.wustl.edu/graduate/program>).

### Qualifying Examinations and Dissertation Proposal

Students taking the Qualifying Exams should display general knowledge and understanding of the primary materials, historical contexts, scholarly questions, and theoretical frameworks that are likely to drive their future dissertations. The Qualifying Exam process consists of three parts: two written qualifying papers and the dissertation prospectus. Students typically choose a team of three faculty members at the beginning of this process who will guide them through the exam process and serve as their readers. In the **first exam**, the student is required to situate his/her primary materials and their author(s) in their respective historical contexts and periods, with specific points of emphasis to be determined together with his or her advising team. The **second exam** serves to frame the student's primary materials in theoretical terms. Within two months after passing the second qualifying exam, the student is required to write a 10-15 page dissertation proposal and then to present it orally to his or her advising team.

## Teaching

PhD candidates are required to teach at least two years at Washington University under the direction of the supervisor of language instruction.

For more information, please contact our Director of Graduate Studies, Jennifer Kapczynski .

## History

The Department of History offers the Doctor of Philosophy in History. In view of our commitment to the doctoral program, we do not offer a terminal AM. Although the department offers doctoral training in any historical specialization covered by a tenured faculty member, it specializes in the history of 17th-through 19th-century America, 20th-century America, Africa, American Political Culture, Central Europe, Early Modern Europe, East Asia (China, Japan), International Urban History, Middle East, and Religion in the Medieval Mediterranean World.

Many of our students pursue interdisciplinary studies and have teaching opportunities in other departments and programs:

African and African-American Studies; American Culture Studies; East Asian Languages and Cultures; International and Area Studies; Jewish, Islamic and Near Eastern Languages and Cultures; and Women, Gender, and Sexuality Studies. The graduate program admits only a small number of students each year in order to promote a close working relationship between students and faculty. We encourage students to develop creative, self-tailored programs of study.

Doctoral students generally devote their first three years to course work, preparing for qualifying examinations in three fields of history and producing a portfolio containing two research papers of publishable quality. Each graduate student's need for linguistic and quantitative skills is determined during the first semester in consultation with his or her adviser. The minimum requirement is normally competence in the language of the documents or culture in which the student proposes to do dissertation research and competence either in one other language (not English) or in the practice of a quantitative or other technical skill.

In considering applications for admission, the department places great emphasis on an applicant's fit with a particular tenured faculty member (who will serve as the student's primary adviser), on the applicant's proposed future research as described in the personal statement, and on the writing sample submitted with the application.

**Phone:** (314) 935-5446  
**E-mail:** [sjpeltz@wustl.edu](mailto:sjpeltz@wustl.edu)  
**Departmental website:** <http://history.artsci.wustl.edu/graduate>

## Chair

### Peter J. Kastor

PhD, University of Virginia  
Early American Republic; American Presidency; North American West

## Endowed Professors

### Jean Allman

J.H. Hexter Professor in the Humanities  
PhD, Northwestern University  
Gender, colonialism and nationalism in Africa

### Daniel Bornstein

Stella K. Darrow Professor of Catholic Studies  
PhD, University of Chicago  
History of Christianity; Medieval and Renaissance Europe

### Derek Hirst

William Eliot Smith Professor of History  
PhD, Cambridge University  
Tudor-Stuart period of British history

**Hillel J. Kieval**

Gloria M. Goldstein Professor of Jewish History and Thought  
PhD, Harvard University  
Modern Jewish history; East Central European history; the  
Holocaust

**Kenneth Ludmerer**

Mabel Dorn Reeder Distinguished Professor in the History of  
Medicine  
PhD, Johns Hopkins University  
History of Medicine; Reform of medical education in the U.S.

**Linda Nicholson**

Susan E. and William P. Stirtz Distinguished Professor of  
Women's Studies  
PhD, Brandeis University  
Women and gender history of 20th-century western society;  
Feminist theory

## Professors

**Iver Bernstein**

PhD, Yale University  
19th-century U.S. history; American political culture; Civil War  
and Reconstruction

**Margaret Garb**

PhD, Columbia University  
19th- and early 20th-century American history; Urban studies;  
African-American political history

**David Konig**

PhD, Harvard University  
History and law in early America; Anglo-American legal history;  
American culture studies

**Timothy Parsons**

PhD, Johns Hopkins University  
Social history and education in colonial Africa; Ethnicity and the  
creation of identity

**Mark Gregory Pegg**

PhD, Princeton University  
Medieval European history

## Associate Professors

**Cassie Adcock**

PhD, University of Chicago  
Modern South Asian history; South Asian religious traditions; the  
Politics of Secularism

**Elizabeth Borgwardt**

PhD, Stanford University  
Historical perspectives on human rights; the history of  
international law

**Shefali Chandra**

PhD, University of Pennsylvania  
Indian and South Asian studies; Global transnational and world  
history; Post-colonial studies

**Andrea Friedman**

PhD, University of Wisconsin-Madison  
Politics, gender and sexuality since WWII

**Christine Johnson**

PhD, Johns Hopkins University  
Early modern Germany; Renaissance culture; European  
expansion

**Steven B. Miles**

PhD, University of Washington  
Social and cultural history of early modern China

**Max Okenfuss**

PhD, Harvard University  
Early modern Russia; Russian education and culture; European  
intellectual history

**Nancy Y. Reynolds**

PhD, Stanford University  
Social and cultural history of the modern Middle East;  
Commerce and consumption in 20th-century Egypt; Urban and  
environmental history

**Corinna Treitel**

PhD, Harvard University  
History of modern Germany; History of science and medicine

**Lori Watt**

PhD, Columbia University  
Political and social history of 20th-century Japan; Imperialism  
and decolonization; Postwar and postcolonial migrations

**Hayrettin Yücesoy**

PhD, University of Chicago  
Medieval Middle East

## Assistant Professors

**Monique Bedasse**

PhD, University of Miami  
Caribbean history

**Venus Bivar**

PhD, University of Chicago  
Political economy; Theories and experiences of statelessness;  
Environmental history

**Alexandre Dubé**

PhD, McGill University  
Early modern Atlantic world

**Sonia Song-Ha Lee**

PhD, Harvard University  
Racial and ethnic identity constructs; Civil Rights; Urban history

### **Sowande' Mustakeem**

PhD, Michigan State University  
Middle Passage studies; Gender and slavery in the Americas;  
Medical history

### **Anika Walke**

PhD, University of California, Santa Cruz  
Russian/Soviet and European history; the Holocaust; Oral history

## **Senior Lecturer**

### **Krister Knapp**

PhD, Boston College  
American Intellectual history; the Cold War; Pop Culture in the  
U.S.

## **Postdoctoral Fellow**

### **Diana Montaña**

PhD, University of Arizona  
The construction of modern Latin American societies;  
Technology and its relationship to nationalism and domesticity

## **Degree Requirements**

### **Requirements and Academic Assessment**

Doctoral candidates ordinarily spend at least two, and more often three, full academic years in residence. Before the dissertation defense takes place, doctoral candidates must have completed 72 units of graduate credit. Over the course of their doctoral program, graduate students may not register for more than 72 units of credit without special consideration. Of the 72 required units, no more than 24 units may be transferred from previous graduate work elsewhere.

### **Languages and Quantitative Skills**

Each graduate student's need for linguistic and quantitative skills is determined during the first semester in consultation with his or her adviser. This determination is subject to review by the Graduate Studies Committee. The student's examining committee will ascertain, by the time of the qualifying examination, that sufficient progress toward acquiring these skills for dissertation research has been made.

The minimum requirement is normally competence in the language of the documents or culture in which the student proposes to do dissertation research, and competence either in one other language (not English) or in the practice of a quantitative or other technical skill. Students normally demonstrate competency by successfully taking a particular course, by passing a translation examination, or by using foreign-language primary sources to write a research paper.

### **Grades**

The performance of students in the Graduate School of Arts & Sciences is marked by the grades A, B, C (Conditional),

and F. The grade of C indicates unsatisfactory work and will be awarded academic credit only if matched by an equivalent number of units graded A. Plus or minus grades may be given, except for grades of B- or C+. Some courses may be graded S (Satisfactory) or F.

Graduate students should expect to earn a grade of A or A- as a mark of good progress through the program. Although a grade of B+ or B will qualify a student for full credit, these should be viewed as a warning that she or he has not sufficiently demonstrated a full mastery of the course material at the doctoral level. More than one or two grades at this level carry the risk of negatively impacting a student's chances on the academic job market.

### **Annual Letters of Review and the Second-year Review**

The Department of History uses annual letters of review and the second-year review to keep students informed of our expectations of their progress and to identify any problems. At the end of each academic year, except the second year, students receive annual letters of review based on the observations of all faculty members with whom they have worked during the academic year, whether as students or as teaching assistants. The letters will identify any areas in which the student needs to improve, and provide clear steps for addressing this. In January of the second year, students receive a second-year review letter.

The department uses the second-year review to identify students who are not performing at a satisfactory level. In consultation with the student's primary adviser, the department then sets goals for that student to meet by the end of the second semester of the second year. If these goals are not met, then the student will not be allowed to proceed to the PhD qualifying examinations; instead, the student will be offered an opportunity to secure an AM degree before leaving the PhD program. In such cases, requirements for the AM degree are as follows:

- Students must have satisfactorily completed a minimum of 36 hours of credit. Since the department does not offer a separate AM degree, we do not require an AM thesis. Therefore, none of the required 36 hours will be awarded for thesis research.
- Students must have successfully completed the course, Literature of History (L22 5471).
- Students must develop expertise in two fields of historical study: one primary field and one secondary field.
- Students must pass an oral examination in these two fields of history.

### **Additional History Department Requirements and Explanations**

A full-time graduate student shall not be allowed more than one incomplete per semester, and that incomplete must be removed

by the end of the following semester. Within this requirement, faculty and students may wish to enter into contracts specifying conditions for the removal of the incomplete. To remain in good standing, a student should take the qualifying examinations by the first semester of the fourth year, at the very latest.

The Department of History's Graduate Studies Committee manages all departmental decisions regarding placement on probation, removal from probation, recommendations for dismissal after a probationary period, and recommendations for immediate dismissal due to extreme under-performance. The Graduate Studies Committee consists of the Director of Graduate Studies and three to four additional Department of History faculty members appointed by the Chair of the Department at the beginning of each academic year.

Otherwise, there are no additional requirements beyond those of the Graduate School of Arts & Sciences.

These guidelines will remain posted on our website, and hard copies will be distributed at the annual department orientation for new PhD students in August.

## Jewish, Islamic and Near Eastern Languages and Cultures

Jewish, Islamic, and Near Eastern Languages and Cultures is an academic department, unique in North America, in which Jewish Studies and Islamic Studies are integrated. It is an interdisciplinary department whose purpose is to explore the *historical experience; literary, religious and cultural expression; and political and material life of the Jewish, Islamic and Near Eastern civilizations*. Whether students favor the study of language, literature, religion, history or politics, they will find in our courses a way to deepen their appreciation of these complex and diverse societies and cultures. Students will also be encouraged to explore the interaction of Jews and Muslims with neighboring societies and cultures in the Middle East, Europe, North Africa, and other parts of the world.

The Department of Jewish, Islamic and Near Eastern Languages and Cultures (JINELC) offers both a *Master of Arts in Jewish Studies*, and a *Master of Arts in Islamic and Near Eastern Studies*.

The department does not currently offer a home-based PhD program. Students who would like to pursue a PhD in one of the fields of Jewish Studies or Islamic and Near Eastern Studies may do so under the auspices of a PhD granting department or program (such as History, Anthropology, or Comparative Literature) in cooperation with participating faculty from Jewish, Islamic and Near Eastern Languages and Cultures. In such instances, the prospective student should apply directly to the appropriate disciplinary department or program at Washington University.

**E-mail:** artsci-jinelc@wustl.edu

**Departmental website:** <http://jinelc.wustl.edu>

### Chair

#### **Nancy E. Berg**

Professor of Hebrew Language and Literature  
PhD, University of Pennsylvania

### Endowed Professor

#### **Hillel J. Kieval**

Gloria M. Goldstein Professor of Jewish History and Thought  
PhD, Harvard University

### Associate Professors

#### **Pamela Barmash**

Associate Professor of Hebrew Bible and Biblical Hebrew  
PhD, Harvard University

#### **Martin Jacobs**

Associate Professor of Rabbinic Studies  
PhD and Habilitation, Free University of Berlin

#### **Erin McGlothlin**

Associate Professor of Germanic Languages and Literature  
PhD, University of Virginia

#### **Nancy Reynolds**

Associate Professor of Jewish, Islamic and Near Eastern Languages and Cultures  
PhD, Stanford University

#### **Hayrettin Yücesoy**

Associate Professor of Arabic and Islamic Studies  
PhD, University of Chicago

### Assistant Professors

#### **Anne-Marie McManus**

Assistant Professor of Modern Arabic Literature  
PhD, Yale University

#### **Aria Nakissa**

Assistant Professor of Islamic Studies  
PhD, Harvard University

### Senior Lecturers

#### **Housni Bennis**

Senior Lecturer in Arabic  
PhD Candidate, Washington University

#### **Giore Etzion**

Senior Lecturer in Modern Hebrew  
MA, University of Michigan

#### **Rami Pinsberg**

Senior Lecturer in Modern Hebrew  
MEd, University of Missouri–St. Louis

**Younasse Tarbouni**

Senior Lecturer in Arabic  
PhD Candidate, L'École des Hautes Études en Sciences  
Sociales (EHESS)

**Mohammad J. Warsi**

Senior Lecturer in South Asian Languages and Cultures  
PhD, Aligarh Muslim University

**Lecturer**

**Sara Jay**

Lecturer in Jewish, Islamic and Near Eastern Languages and  
Cultures  
PhD, Washington University

**Postdoctoral Fellow**

**Saul Zaritt**

Friedman Postdoctoral Fellow in Jewish Studies  
PhD, The Jewish Theological Seminary

**Endowed Professors - Affiliated**

**John R. Bowen**

Dunbar-Van Cleve Professor in Arts and Sciences  
PhD, University of Chicago  
(Anthropology)

**Professors - Affiliated**

**Lois Beck**

Professor of Sociocultural Anthropology  
PhD, University of Chicago

**Robert Canfield**

Professor of Sociocultural Anthropology  
PhD, University of Michigan

**Joseph Schraibman**

Professor of Romance Languages  
PhD, University of Illinois at Urbana-Champaign

**Itai Sened**

Professor of Political Science  
PhD, University of Rochester

**Associate Professors - Affiliated**

**Michael Frachetti**

Associate Professor of Anthropology  
PhD, University of Pennsylvania

**Seth Graebner**

Associate Professor of French and International and Area  
Studies  
PhD, Harvard University

**Tabea Alexa Linhard**

Associate Professor of Spanish and Comparative Literature  
PhD, Duke University

**Assistant Professors - Affiliated**

**Denise Gill**

Assistant Professor of Ethnomusicology  
PhD, University of California, Santa Barbara

**Degree Requirements**

**Master's Degrees**

The Department of Jewish, Islamic and Near Eastern Languages and Cultures (JINELC) offers both a *Master of Arts in Jewish Studies*, and a *Master of Arts in Islamic and Near Eastern Studies*.

**Master of Arts in Jewish Studies**

The AM program in Jewish Studies offers students an opportunity for dedicated, interdisciplinary study of the history, literatures, and cultures of the Jewish people from ancient to modern times. It is designed for students who have some college-level preparation in the field and who wish to deepen their expertise in preparation for a PhD program. It is also well-suited for those planning on professional careers in education, law, business, or social work. Our faculty offer graduate-level instruction in Hebrew Bible; rabbinic culture and texts; medieval, early modern and modern Jewish history in both Europe and the Middle East; Jewish-Muslim encounters throughout history; and premodern and modern Hebrew literature. Applicants to the AM program must show proficiency in Hebrew language equivalent to at least one year of college-level study. Students will be expected to have successfully completed third-year Hebrew before receiving the AM degree.

**Degree Requirements**

- A minimum of 30 credits from graduate-level courses, which may include up to 6 units transferred from another institution. (Note: first- and second-year language classes do not count toward these 30 credits.)
- Successful completion of third-year Hebrew.
- Ability to use Hebrew source material and scholarly articles, to be demonstrated in at least one major seminar paper.
- 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.
- Students have the option of writing a master's thesis in place of the two major research papers (see Policies and Timelines (p. 99), below).
- At the end of their program of study, degree candidates are required to complete successfully an oral examination, lasting no more than one hour, based on either the two research papers submitted for this purpose or the master's thesis.
- Please note also the departmental Policies and Timelines (p. 99) (below).

## Recently-offered Graduate-Level Courses in Jewish Studies

### Jewish History

- L75 JINE 535C, Becoming "Modern": Emancipation, Anti-Semitism, and Nationalism in Modern Jewish History
- L75 JINE 536, The History of the Jews in Islamic Lands
- L75 JINE 5330, Out of the Shtetl: Jews in Central and Eastern Europe Between Empire, State, and Nation in the 19th and 20th Centuries
- L75 JINE 5334, Crusade, Disputation, and Coexistence: Jews in Christian Europe
- L75 JINE 5900, Identity: Genocide and Migration: Flight and Displacement Under Nazi Regime

### Biblical Studies

- L75 JINE 501C, Kings, Priests, Prophets, and Rabbis: The Jews in the Ancient World
- L75 JINE 584, Introduction to Biblical Hebrew for Graduate Students
- L75 JINE 585D, Topics in Biblical Hebrew Texts: Biblical Law
- L75 JINE 585D, Topics in Biblical Hebrew Texts: Biblical Poetry
- L75 JINE 585D, Topics in Biblical Hebrew Texts: The Book of Isaiah
- L75 JINE 5012, Biblical Law and the Origins of Western Justice
- L7 JINE 5751, In the Beginning: Creation Myths of the Biblical World

### Hebrew and Jewish Literature

- L75 JINE 402, Fourth-Level Modern Hebrew I and II
- L75 JINE 4741, Topics in Jewish Literature: Exile, Jewish Historical Experience and Literary Imagination
- L75 JINE 5060, Modern Jewish Writers
- L75 JINE 5348, Travelers, Tricksters, and Storytellers: Jewish Travel Narratives and Autobiographies, 1100-1800
- L75 JINE 540, Israeli Women Writers

### Rabbinic Culture and Texts

- L75 JINE 440, Topics in Rabbinic Texts: Midrash
- L75 JINE 440, Topics in Rabbinic Texts: Mishnah and Gemara
- L75 JINE 444, The Mystical Tradition in Judaism
- L75 JINE 5082, From the Temple to the Talmud: The Emergence of Rabbinic Judaism

### Research Seminars

- L75 JINE 49JK, Advanced Seminar: Blood and Sacred Bodies: Ritual Murder and Host Desecration Accusations

- L75 JINE 401W, Seminar in Hebrew Literature: Israeli Culture
- L75 JINE 405, Diaspora in Jewish and Islamic Experience
- L75 JINE 409, Beyond Geography: The Meaning of Place in the Near East
- L75 JINE 492, Advanced Seminar: Europe's "Jewish Question": Emancipation, Anti-Semitism, and Jewish-Christian Confrontation
- L75 JINE 4001, Convivencia or Reconquista? Muslims, Jews, and Christians in Medieval Iberia
- L75 JINE 4020, Jerusalem, the Holy City
- L75 JINE 502, Proseminar in European Jewish History

This list is not exhaustive and departmental course offerings may change. Other graduate-level courses in anthropology, history, various languages and literatures, philosophy, and political science may be taken, as long as they are related to a student's specific field of study and have been approved by his or her academic advisor.

## Policies and Timelines Applying to Both AM Programs

For policies and timelines applying to both AM programs, please refer to the section below (p. 99).

## Master of Arts in Islamic Studies

The AM program in Islamic and Near Eastern Studies offers students an opportunity for dedicated, interdisciplinary study of the history, literatures, and cultures of the Middle East from the Middle Ages to the present. It is designed for students who ideally have some undergraduate training in Arabic or other Near Eastern languages, and offers as an excellent preparation for a PhD program in the field. It is also well-suited for those planning on professional careers in education, law, business, government, and private agencies whose work touches upon some aspect of Islamic and Near Eastern Studies. Our faculty offer graduate-level instruction in Islamic and Near Eastern history; Islamic religion and thought; premodern Muslim political thought and practice; Islam in world history; Near Eastern urban studies; and both classical and modern Arabic literature. Students will be expected to have successfully completed third-year Arabic before receiving the AM degree.

## Degree Requirements

- A minimum of 30 credits from graduate-level courses, which may include up to 6 units transferred from another institution. (Note: first- or second-year language classes do not count toward these 30 credits.)
- Successful completion of third-year Arabic.
- Ability to use Arabic source material and scholarly articles, to be demonstrated in at least one major seminar paper.

- 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.
- Students have the option of writing a master's thesis in place of the two major research papers (see Policies and Timelines (p. 99), below).
- At the end of their program of study, degree candidates are required to complete successfully an oral examination, lasting no more than one hour, based on either the two research papers submitted for this purpose or the master's thesis.
- Please note also the departmental Policies and Timelines (p. 99) (below).

### **Recently-offered Graduate-Level Courses in Islamic and Near Eastern Studies**

#### **Islamic and Near Eastern History**

- L75 JINE 4274, Palestine, Israel, and the Arab-Israeli Conflict
- L75 JINE 4675, Beyond the Harem: Women, Gender, and Revolution in the Modern Middle East
- L75 JINE 4872, Colonial Cities and the Making of Modernity
- L75 JINE 501M, Historical Methods-Middle Eastern History: Law and Revolution in Modern Egypt
- L75 JINE 536, The History of the Jews in Islamic Lands
- L75 JINE 5061, City of Peace: Baghdad in Medieval Times (ca. 762-1250)
- L75 JINE 5149, The Late Ottoman Middle East
- L75 JINE 5150, The Middle East in the Twentieth Century
- L75 JINE 5314, Islamic History: 1200-1800
- L75 JINE 5510, Muhammad in History and Literature

#### **Qur'an, Islamic Law and Theology**

- L75 JINE 412, Islamic Theology
- L75 JINE 445, Topics in Islam: Readings in Islamic Political Thought
- L75 JINE 546, Islamic Law
- L75 JINE 562, Approaches to the Qur'an
- L75 JINE 5622, Topics in Islam: Islam in the Modern World

#### **Arabic Literature**

- L75 JINE 471, Topics in Modern Arabic Literature in Translation: The Syrian Revolution: Literature, Art, Ideology
- L75 JINE 4081, Fourth-Level Modern Arabic I and II
- L75 JINE 529, Middle Eastern Islamic Literatures in Translation
- L75 JINE 5325, Introduction to Arabic Literature

#### **Research Seminars**

- L75 JINE 49NR, Advanced Seminar: Egypt and the Arab Spring: Middle Eastern Revolution in Historical Perspective

- L75 JINE 405, Diaspora in Jewish and Islamic Experience
- L75 JINE 409, Beyond Geography: The Meaning of Place in the Near East
- L75 JINE 4001, Convivencia or Reconquista? Muslims, Jews, and Christians in Medieval Iberia
- L75 JINE 4020, Jerusalem, the Holy City
- L75 JINE 4970, Empire and Messianism in the Middle East
- L75 JINE 5442, Core Seminar in World/Comparative History: Social and Cultural History of the Modern Middle East

This list is not exhaustive and departmental course offerings may change. Other graduate-level courses in anthropology, history, various languages and literatures, philosophy, and political science may be taken, as long as they are related to a student's specific field of study and have been approved by his or her academic adviser.

### **Policies and Timelines Applying to Both AM Programs**

To complete our AM programs, including the third-year language requirement, within the typical course of two years, students need to be self-motivated and should develop close working relationships with their academic advisers.

Master's students planning to graduate WITHOUT THESIS should meet with their academic adviser at the beginning of the fall term of their second year to discuss their graduation plans. By the first week of the spring semester, students and their advisers should have determined the two research papers (each of which should be at least 30 pages long) to be defended, set all pertinent submission deadlines, selected the three members of the defense committee, and set a date for the oral defense to be scheduled no later than the first two weeks of April.

Master's students planning to graduate WITH THESIS should approach a potential thesis adviser (who may but does not need to be identical with their academic adviser) toward the end of their first year. The thesis represents original work of highly polished quality and is significantly more substantive than a research paper (usually about 80-100 pages long). The guidelines issues by the Graduate School for master's theses also apply in this case (<http://graduateschool.wustl.edu/policies-and-guides>). In both the fall and spring terms of their second year, students need to enroll in L75 JINE 591 Directed Writing: Thesis. At the beginning of the spring term, students, together with their adviser(s), are expected to determine a thesis committee consisting of three readers. The final draft of the thesis is due to the thesis adviser on the Friday before Spring Break. The oral defense should be scheduled no later than the second week of April.

### **Satisfactory Academic Progress**

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. Students with full or partial tuition

remission are expected to maintain a significantly higher grade point average.

Students may be dismissed immediately for extreme academic underperformance. Examples of extreme underperformance might be two grades of C or below in one semester or three unfinished courses (I, X or N) in one semester. In any case, unfinished courses should not remain on the record for longer than one semester. Students who encounter personal situations that contribute to academic underperformance have the option to request a Leave of Absence rather than continuing enrollment with poor performance. Most academic difficulties are not of the severity associated with immediate dismissal.

### **Guidelines for Academic Probation and Dismissal**

Academic Dismissal is distinct from withdrawal (initiated by the student), deactivation of a student's record by a failure to register, and dismissal or other sanctions associated with the Graduate School of Arts & Sciences (GSAS) Academic and Professional Integrity Policy (<http://graduateschool.wustl.edu/files/graduate/AcademicIntegrity.pdf>) or the University Student Judicial Code. Dismissals are recommended by the degree program and are not final until approved by the Dean of the GSAS.

Except for circumstances justifying immediate dismissal, a student cannot be dismissed on the basis of academic performance without the opportunity to return to good standing during an identified period of probation. The purpose of probation is to: (1) explicitly warn the student of his or her status, (2) provide the student with clear guidelines of the performance that will be necessary to return to good standing, and (3) provide the student with reasonable time to meet these expectations. A student on probation must receive a detailed letter from the director of graduate studies stating the reasons for the probation and explicitly identifying the steps necessary for the student to return to good standing by the end of the probation period. A copy of this letter should be sent to the Dean of the GSAS. While the purpose of the probationary period is to provide the student with time to improve, the decision of the program at the end of a probationary period could involve short-term or immediate notification of dismissal.

## **Latin American Studies**

The **Graduate Certificate in Latin American Studies** offers Washington University students the opportunity to pursue a multidisciplinary specialization on this region of the world while completing their PhD degree. The Certificate combines discipline-based training with cultural studies, thus allowing for a rigorous approach to Latin America's social, economic, and political history. At the same time, students are exposed to new theories and current debates on the topics of nation formation, governance, colonialism, development, regionalism, public health, modernization, globalization, neoliberalism, etc. At the

national level, programs of Latin American Studies date back to the late 1940s, when the Area Studies paradigm became central in the internationalization of academic focus in the context of the Cold War. Today, as globalization has made internationalization an even more pressing concern, Latin American Studies is part of a new need for better understanding of other world regions. In fact, Latin American countries consistently play an important role within the intellectual and political spheres of the United States. Latin America is the single largest source of immigrants to the United States today. It has the third trade partner of the U.S. (Mexico), one of the most vibrant emergent economies in the world (Brazil), countries that have been at the core of U.S. foreign policy for decades (Colombia, Venezuela, Cuba and the Andean region, for instance) and a vibrant population and culture that is growingly the focus of U.S. students.

### **Application**

Students will be required to apply to be considered for the certificate program and will be evaluated by the graduate certificate committee on a rotating basis. This application is submitted at the beginning of the student's doctoral course work in Arts & Sciences and requires a support letter from the DGS of their PhD home department or program. The Chair of the Graduate Certificate Committee will forward recommendations for admission to the Dean of the Graduate School of Arts & Sciences for final approval. All applicants to the Certificate are expected to be in good academic standing as defined by the Graduate School.

<b>Contact Person:</b>	Professor Ignacio Sánchez Prado
<b>Phone:</b>	(314) 935-5175
<b>E-mail:</b>	<a href="mailto:isanchez@artsci.wustl.edu">isanchez@artsci.wustl.edu</a>
<b>Departmental website:</b>	<a href="http://lasprogram.wustl.edu">http://lasprogram.wustl.edu</a>

### **Core Faculty**

#### **Mabel Moraña**

William H. Gass Professor in Arts & Sciences  
PhD, University of Minnesota  
Romance Languages and Literatures

#### **Ignacio Sánchez Prado**

Associate Professor  
PhD, University of Pittsburgh  
Romance Languages and Literatures

### **Faculty Specialized in Latin America**

#### **William Acree**

Assistant Professor  
PhD, University of North Carolina at Chapel Hill  
Romance Languages and Literatures

**Peter Benson**

Associate Professor  
PhD, Harvard University  
Anthropology

**David L. Browman**

Professor  
PhD, Harvard University  
Anthropology

**J. Andrew Brown**

Associate Professor  
PhD, University of Virginia  
Romance Languages and Literatures

**Rebecca Clouser**

Postdoctoral Fellow  
PhD, Indiana University  
International and Area Studies

**Brian Crisp**

Professor  
PhD, University of Michigan  
Political Science

**David Freidel**

Professor  
PhD, Harvard University  
(Anthropology)

**Bret Gustafson**

Associate Professor  
PhD, Harvard University  
Anthropology

**Steven Hirsch**

Professor  
PhD, George Washington University  
International and Area Studies

**Stephanie Kirk**

Associate Professor  
PhD, New York University  
Romance Languages and Literatures

**Sonia Lee**

Assistant Professor  
PhD, Harvard University  
History

**Javier García Liendo**

Assistant Professor  
PhD, Princeton University  
Romance Languages and Literatures

**Tabea Linhard**

Associate Professor  
PhD, Duke University  
Romance Languages and Literatures

**Diana Montañó**

Postdoctoral Fellow  
PhD, University of Arizona  
History

**Guillermo Rosas**

Associate Professor  
PhD, Duke University  
Political Science

**Joseph Schraibman**

Professor  
PhD, University of Illinois  
Romance Languages and Literatures

**Ila Sheren**

Assistant Professor  
PhD, Massachusetts Institute of Technology  
Art History & Archaeology

**Elzbieta Sklodowska**

Randolph Family Professor in Arts & Sciences  
PhD, Washington University  
Romance Languages and Literatures

**Valéria M. Souza**

Lecturer  
PhD, The University of Massachusetts Dartmouth  
Romance Languages and Literatures

**Kedron Thomas**

Assistant Professor  
PhD, Harvard University  
Anthropology

## Professors Emeriti

**Pedro C. Cavalcanti**

PhD, University of Warsaw  
Anthropology

**John F. Garganigo**

PhD, University of Illinois  
Romance Languages and Literatures

**Richard J. Walter**

PhD, Stanford University  
History

## Degree Requirements

### Certificate Requirements

Students interested in earning the Graduate Certificate in Latin American Studies must complete 15 graduate units. Six of those units may also count toward the PhD requirements with the prior approval of the PhD home department Director of Graduate Studies. Students who earn the Graduate Certificate, which is awarded concurrently with the PhD degree, complete a total of 81 graduate units rather than the 72 graduate units required for the PhD degree alone. Students in the LAS Graduate Certificate

Program must fulfill all requirements of the PhD required by their respective home departments and the Graduate School, and the following LAS certificate requirements:

**Complete a total of 15 graduate credits:**

- 3 credits from one (1) LASP core course
- 3 credits from one (1) 400-level course from the LAS core program
- 9 credits from three (3) LASP-related courses in at least two departments or schools outside the student's major department
- Have proven proficiency in Spanish or Portuguese, following the guidelines established by the Department of Romance Languages and Literatures
- Spend at least one summer abroad, conducting research in Latin American Studies
- Participate actively in the Latin American Colloquium for at least one semester, including the presentation of a research paper. The presentation should ideally result from the summer research mentioned above.

## Materials Science & Engineering

### Mission Statement

The Institute of Materials Science & Engineering (IMSE) seeks to create and sustain a culture of interdisciplinary materials science research and education at Washington University that eliminates traditional boundaries between departments and schools.

Toward this end, the IMSE administers an interdisciplinary PhD program; expands and administers user facilities and resources for materials processing and characterization; coordinates and provides management support for interdisciplinary groups pursuing external funding for campus-wide research efforts; and coordinates research and entrepreneurial interactions with industry and national facilities.

### About IMSE

Throughout history, civilization has advanced as a result of new innovations in materials that enabled the development of new technologies. Indeed, the solutions to the significant challenges that we currently face, including finding new sources of energy, developing ways to use the available energy more efficiently, and addressing environmental concerns, demand the development of new materials. The design of new materials is also important for medical advances, with further developments in tissue engineering being only one example. Furthermore, many new techniques developed in materials investigations have expanded uses; one example is the application of methods for characterizing the structures of complex materials to study disease propagation.

Materials Science & Engineering is the interdisciplinary field focused on the development and application of new materials with desirable properties and microstructures. Disciplines in the physical sciences (chemistry, physics, etc.) and engineering fields (mechanical engineering, electrical engineering, biomedical engineering, etc.) frequently play a central role in developing the fundamental knowledge that is needed for materials studies. The discipline of Materials Science & Engineering integrates this knowledge and uses it to design and develop new materials and to match these with appropriate technological needs.

While the development of materials is moving at a faster pace today than ever before, the current "time to market" from discovery to deployment of new materials is still too slow; it can take 20 years or more to develop, optimize, validate, and insert a material into service. Recognizing the bottleneck that the availability of new materials places on innovations in other strategic areas, in 2011 the White House launched the Materials Genome Initiative (MGI) to fund the growth of the national materials innovation infrastructure, including experimental and computational tools and collaborative networks, necessary to both accelerate and bring down the cost of materials discovery and development.

The Institute of Materials Science & Engineering (IMSE) is well positioned to address the challenges articulated by the MGI. Established in 2013, the IMSE brings together more than 30 research groups in Arts & Science, the School of Engineering & Applied Sciences, and the Medical School. The IMSE works to integrate and expand the existing materials interests at Washington University by establishing and overseeing shared research and instrument facilities, creating partnerships with industry and national facilities, and setting up outreach activities. In addition, IMSE oversees an interdisciplinary PhD program in Materials Science & Engineering that exploits the full potential of the existing materials activities to educate the next generation of materials scientists and engineers.

Current focused areas of research and advanced graduate education within the IMSE include:

### Plasmonics, Photonics and Materials for Sensors and Imaging

Fabricating nanoscopic metallic and dielectric structures has become feasible with the maturity of nanofabrication techniques. When carefully engineered, these nanostructures can act as enhanced optical filters tuned to filter and/or amplify spectral-polarization signatures of the incoming light. The monolithic integration of various nanostructures with CMOS technology can open up realization of compact sensors with enhanced sensing capabilities. These sensors can be used to identify the spectral-polarization signatures of healthy vs. tumor cells during in-vivo sensing, such as endoscopy, laparoscopy and other medical related imaging. Other applications for these sensors include: enhanced and non-invasive blood glucose monitoring,

blood oxygen level monitoring and others. Furthermore, these sensors can be used for non-invasive medicine, where seamless integration with today's smartphone technology can help monitor the health of the general population in a cost-effective manner.

### **Computational Materials Science**

Computational Materials Science tools, based in chemistry and physics, give us: (i) Qualitative frameworks for thinking about atomistic processes and mechanisms, (ii) Quantitative understanding of thermodynamic driving forces, and (iii) Prediction of properties or molecular architectures for engineering design. Often, we will want to know the structure of a few atoms in a material (e.g., defect or reactive sites), and quantum mechanics allows us to calculate these structures and associated electronic energies to high accuracy. However, we ultimately need to predict multiscale properties that can be compared with experimental data, so we use statistical mechanics to perform temporal or spatial averages over a large number of simulations to obtain these macroscopic observables. We thus develop predictive insight that may be used to guide experimental design of new materials.

### **Energy Harvesting and Storage**

Energy is the underpinning of all technological progress our society makes. Tapping into energy sources and converting and storing energy into useful forms are challenges humans face within the constraints of limited natural resources and an increasing global demand. Materials lie at the heart of this challenge. By creating novel materials with unique structure, properties and better processes, scientists and engineers in IMSE are creating exciting opportunities to address the grand energy challenge.

### **Materials for Regenerative Medicine**

The IMSE Materials for Regenerative Medicine research concentration comprises two areas:

- Synthesis of bio-inspired materials
- Understanding the material properties of tissues and biomaterials

### **Structure, Properties and Phase Transformations of Complex Materials**

Combining an impressive array of properties, including extraordinary tensile strength (~2-4 GPa), large elastic deflections (~2% elastic strain), and excellent wear and corrosion resistance, bulk metallic glasses (BMG) have been touted as revolutionary structural materials for more than a decade. Indeed, they have been implemented in a number of "boutique" applications, such as military weapons systems and sporting goods. Recently, focus has turned to BMGs' remarkable ability to be thermoplastically formed into complex shapes easily and inexpensively in the supercooled liquid regime, a capability traditionally limited to low-strength plastics. This

combination of both outstanding mechanical properties and ease of processing opens the door for BMGs to truly become the transformational materials they promised to be. However, the lack of long-range atomic order in these alloys both dictates their unique mechanical behavior and processing characteristics and presents a challenge for understanding the relationships among structure, processing, and properties in BMGs within a consistent physical framework. Further, a quantitative understanding of the process by which liquids become glasses remains elusive. Research in this area is focused on these questions for glasses and the complex crystal and quasicrystal phases to which they are related.

### **Environmental Technologies and Sustainability**

Materials science intersects with the fields of environmental science and sustainability in a variety of ways. This involves both developing new materials and conducting basic science research to understand processes governing the behavior of the materials. Specific research areas with emphasis in IMSE include: carbon dioxide capture and conversion (to metal carbonates and other products), treatment for removal of aqueous-phase contaminants, and the surface chemistry of environmental materials from natural and engineered systems.

**Contact Person:** Beth Gartin  
**Phone:** (314) 935-7197  
**E-mail:** bgartin@wustl.edu  
**Departmental website:** <http://imse.wustl.edu>

### **Director**

#### **Kenneth F. Kelton**

Arthur Holly Compton Professor of Arts & Sciences - Physics PhD, Harvard University  
Study and production of titanium-based quasicrystals and related phases. Fundamental investigations of time-dependent nucleation processes. Modeling of oxygen precipitation in single crystal silicon. Structure of amorphous materials. Relation between structure and nucleation barrier. Hydrogen storage in quasicrystals.

### **Associate Director**

#### **Katharine M. Flores**

Professor and Associate Chair (Materials Science) - Mechanical Engineering & Materials Science PhD, Stanford University  
Professor Flores' primary research interest is the mechanical behavior of structural materials, with particular emphasis on understanding structure-processing-property relationships in bulk metallic glasses and their composites.

## Professors

### Sophia E. Hayes

Professor - Chemistry

PhD, University of California, Santa Barbara

Physical inorganic chemistry; materials chemistry; solid-state NMR; magnetic resonance; Optically-pumped NMR (OPNMR); semiconductors; quantum wells; magneto-optical spectroscopy; Quadrupolar NMR of thin films and tridecameric metal hydroxide clusters and thin films; Carbon capture, utilization and storage (CCUS); CO<sub>2</sub> geosequestration; CO<sub>2</sub> capture; in situ NMR; metal carbonate formation.

### Lan Yang

Edwin H. & Florence G. Skinner Professor - Electrical & Systems Engineering

PhD, California Institute of Technology

Professor Yang's research interests are fabrication, characterization, and fundamental understanding of advanced nano/micro photonic devices with outstanding optical properties. Currently, her group focuses on the silicon-chip based ultra-high-quality micro-resonators made from spin-on glass. The spin-on glass is a kind of glass obtained by curing a special liquid using sol gel or wet chemical synthesis to form a layer of glass. The main advantage of the spin-on glass is the easy tailoring of the nano/micro structure of the glass by controlled variation in the precursor solutions. It enables them to fabricate various micro/nano photonic devices from advanced materials with desired properties.

## Associate Professors

### Young-Shin Jun

Harold D. Jolley Career Development Associate Professor - Energy, Environmental & Chemical Engineering

PhD, Harvard University

Professor Jun's research is highly interdisciplinary as the Jun group seeks to enable more environmentally sustainable CO<sub>2</sub> sequestration as a mitigation technique for climate change. The group also develops nanochemistry-enabled new treatment techniques and catalysts for purifying drinking water and remediating contaminated water and soil, benefiting water reuse, managed aquifer recharge, and reverse osmosis processes. In addition, the ENCL investigates biomineralization and bio-inspired chemistry for novel materials development.

### Srikanth Singamaneni

Associate Professor - Mechanical Engineering & Materials Science

PhD, Georgia Institute of Technology

Professor Singamaneni's research interests include Plasmonic engineering in nanomedicine (in vitro biosensing for point-of-care diagnostics, molecular bioimaging, nanotherapeutics), photovoltaics (plasmonically enhanced photovoltaic devices), surface enhanced Raman scattering (SERS) based chemical sensors with particular emphasis on the design and fabrication of unconventional and highly efficient SERS substrates, hierarchical organic/inorganic nanohybrids as multifunctional materials, bioinspired structural and functional materials, polymer surfaces and interfaces, responsive and adaptive materials and scanning probe microscopy and surface force spectroscopy of soft and biological materials.

## Assistant Professors

### Parag Banerjee

Assistant Professor - Mechanical Engineering & Materials Science

PhD, University of Maryland, College Park

Professor Banerjee's research interests focus on two aspects of materials science and engineering. Firstly, he is interested in the synthesis of nanomaterials with tunable properties using principles of self-assembly and self-limited reactions. Secondly and perhaps more importantly, he is interested in integrating these materials into "performance enhancing" nano-architectures for components such as biomedical sensors, energy storage and energy harvesting devices.

### Mikhail Y. Berezin

Assistant Professor - Radiology

PhD, Moscow Institute of Oil and Gas / Institute of Organic Chemistry

My research interest lies in the investigation and application of molecular excited states and their reactions for medical imaging and clinical treatment. Excited states are the cornerstone of a variety of chemical, physical, and biological phenomena. The ability to probe, investigate, and control excited states is one of the largest achievements of modern science. The lab focuses on the development of novel optically active probes ranging from small molecules to nanoparticles, and the development of optical instrumentation for spectroscopy and imaging and their applications in medicine.

#### **Julio D'Arcy**

Assistant Professor - Chemistry

PhD, University of California, Los Angeles

The overarching goals of the D'Arcy laboratory are to discover and apply novel functional nanostructured organic and inorganic materials utilizing universal synthetic chemistry protocols that control chemical structure, nanoscale morphology, and intrinsic properties. We are interested in capacitive and pseudocapacitive nanostructured materials such as conducting polymers, metal oxides, and carbon allotropes possessing enhanced chemical and physical properties, i.e. charge carrier transport, ion transport, surface area, thermal and mechanical stability. Our concerted material discovery process is a multi-pronged approach; organic and inorganic nanostructured materials are synthesized via solution processing, electrochemistry, vapor phase deposition, and combinations thereof. Alternatively, we also develop self-assembly techniques that result in tailored materials

#### **Erik Henriksen**

Assistant Professor - Physics

PhD, Columbia University

We are an experimental condensed matter research lab with interests primarily in the quantum electronic properties of graphene and other novel two-dimensional systems. We utilize state-of-the-art nanofabrication techniques in combination with measurements made at low temperatures and high magnetic fields to explore both the fundamental electronic structures and emergent quantum phenomena of low-dimensional materials.

#### **Cynthia Lo**

Assistant Professor - Energy, Environmental & Chemical Engineering

PhD, Massachusetts Institute of Technology

Professor Lo uses electronic structure calculations and molecular dynamics simulations to study the structure and reactivity of molecular and nanoscale systems for solar energy utilization. Some applications of current interest include bio-hybrid solar cells, photosynthesis, transparent conducting oxides for photovoltaic and thermoelectric applications, and multifunctional heterogeneous catalysts and photocatalysts. In addition, Professor Lo is interested in developing multiscale computational methods that link existing methods across time and length scales in order to model complex chemical systems.

#### **Rohan Mishra**

Assistant Professor - Mechanical Engineering & Materials Science

PhD, The Ohio State University

In his lab at WashU, Mishra plans to identify and develop a quantitative measure of structure-property correlations in materials, such as epitaxial thin films and materials with reduced dimensionality, using a synergistic combination of scanning transmission electron microscopy and atomic-scale theory, to create rational design of materials with properties tailored for electronic, magnetic, optical and energy applications.

#### **Bryce Sadtler**

Assistant Professor - Chemistry

PhD, University of California, Berkeley

The Sadtler research group seeks to understand and control structure-property relationships in adaptive, mesostructured materials. Through hierarchical design of the atomic composition, nanoscale morphology, and mesoscale organization of the individual components, we can direct the emergent chemical reactivity and physical properties of these complex systems. Research projects combine solution phase growth techniques to synthesize inorganic materials, external fields to control the growth and assembly of mesoscale architectures, and super-resolution imaging to provide spatiotemporal maps of the optical response and photocatalytic activity during the morphological evolution of these structures. Knowledge gained from these fundamental studies will be used to create functional materials, including plasmonic substrates that enhance absorption in thin-film semiconductors, mesostructured photocatalysts for solar fuels generation, and chemical sensors based on self-assembled photonic structures.

#### **Simon Tang**

Assistant Professor - Orthopaedics

PhD, Rensselaer Polytechnic Institute

With the overall theme of understanding the biological regulation of skeletal matrix quality, our research group integrates engineering and biology approaches for (1) understanding the effect of disease mechanisms on the structure-function relationships of skeletal tissues and (2) developing of translatable therapeutic and regenerative strategies for these diseases. The investigation of these scientific questions includes the application of finite element analyses, multiscale tissue mechanics, and the functional imaging of skeletal tissues for regenerative medicine with in vitro and in vivo biological systems.

#### **Elijah Thimsen**

Assistant Professor - Energy, Environmental & Chemical Engineering

PhD, Washington University

The Interface Research Group focuses on advanced gas-phase synthesis of nanomaterials for energy applications. We are currently exploring nonthermal plasma synthesis and atomic layer deposition (ALD). The goal is to discover and then understand useful interfacial phenomena. Examples of applications we are currently interested in are: transparent conducting oxides, photovoltaics, lithium-sulfur batteries and coatings for high-temperature combustion.

### Fuzhong Zhang

Assistant Professor - Energy, Environmental & Chemical  
Engineering

PhD, University of Toronto

Professor Zhang's research interests focus on developing synthetic biology approaches to produce advanced biofuels, chemicals, and materials from sustainable resources. Current research projects include: (1) developing dynamic regulatory systems for biosynthetic pathways; (2) engineering microbes to produce structure-defined biofuels and chemicals; (3) developing microbial factories for advanced materials; (4) engineering cyanobacteria for synthetic biology applications.

## Degree Requirements

### Interdisciplinary PhD in Materials Science & Engineering

To earn a PhD degree, students must complete the Graduate School requirements, along with specific program requirements. Course work includes:

4 IMSE Core Courses (12 academic credits)

- Mechanical Behavior of Materials (MEMS 5601)
- Introduction to Polymer Science & Engineering (MEMS 5608)
- Quantitative Materials Science & Engineering (MEMS 5610)
- Thermodynamics & Kinetics of Materials (Physics 537)

Solid State Chemistry or Physics (3 academic credits)

- Solid State and Materials Chemistry (Chem 465)

or

- Solid State Physics (Physics 472)

IMSE First-Year Research Rotation (3 academic credits)

IMSE Seminar (1 academic credit; 2 required, 3 allowed for credit)

Two Electives from "Structures" or "Properties" categories below (p. 107) (6 credits)

Additional electives from participating departments to reach 36 academic credits (~9 academic credits, ~3 courses)

Students must maintain an average grade of B (GPA 3.0) for all 72 credits. Additionally, the required courses must be completed with no more than one grade below a B-. Up to 24 graduate credits may be transferred with the approval of the Graduate Studies Committee, chaired by the Associate Director of the IMSE.

### In addition to fulfilling the course and research credit requirements, the student must:

- Complete a Research Rotation

- Identify an IMSE faculty member willing and able to support their thesis research on a materials-related topic
- Fulfill the Teaching requirement
  - Attend 2+ Teaching Center Workshops
  - 15 units of teaching experience (basic and advanced levels)
- Successfully complete the Qualifying Examination (oral & written)
- Maintain satisfactory research progress, as determined by the student's Thesis Advisor and Mentoring Committee
- Successfully complete the Thesis Proposal and Presentation
- Successfully complete and defend a dissertation

**Failure to meet these requirements will result in dismissal from the program.**

### Course Plan

#### Year 1

##### Fall Semester (13 Credits)

- Solid-State and Materials Chemistry (Chem 465) or elective
- Quantitative Materials Science and Engineering (MEMS 5610)
- Mechanical Properties of Materials (MEMS 5601)
- Elective
- IMSE Seminar

##### Spring Semester (13 Credits)

- Thermodynamics/Kinetics of Materials (Physics 537)
- Introduction to Polymer Science and Engineering (MEMS 5608)
- Solid State Physics (Physics 472) or Elective
- IMSE First-Year Research Rotation
- IMSE Seminar Series

#### Summer

- Begin thesis research
- Prepare for Qualifying Exam (August)
  - Committee: 3 Core Faculty, must include representatives from Engineering and Arts & Science
  - Written document and oral presentation on research rotation, oral exam on fundamentals from core courses.

#### Years 2 and beyond

- 3 Electives (Discuss with PhD Advisor)
- IMSE Seminar (once more for credit)
- IMSE PhD Research
- Teaching requirement
  - Attend 2+ Teaching Center Workshops
  - 15 units of teaching experience (basic & advanced levels)

- Annual (or more frequent) meetings with Faculty Mentoring Committee
  - Committee: minimum of PhD Advisor & 2 Core Faculty
- Thesis proposal & presentation (fifth semester)
  - Committee: Advisor + 2 Core faculty + 2 other IMSE faculty + 1 outside IMSE
  - Committee must include representatives from Engineering and Arts & Science
- Dissertation & oral defense

#### Electives: Structure Category

MEMS 5603: Materials Characterization Techniques I  
MEMS 5604: Materials Characterization Techniques II  
Physics 539: Structure and Diffraction in Materials

#### Electives: Properties & Applications Category

BME 5231 Biomaterials Science: Polymer Physics  
BME 523 Biomaterials Science  
Chem 543 Physical Properties of Quantum Nanostructures  
EECE Electrochemical Engineering  
EECE 518 Aerosol Science and Technology  
EECE 534 Environmental Nanochemistry  
ESE 531 Nano and Micro Photonics  
ESE 532 Introduction to Nano-Photonic Devices  
EPSc 511 Minerals in Aqueous Environments  
EPSc 580 Deformation of Planetary Materials  
MEMS 5504 Fracture Mechanics  
MEMS 5606 Soft Nanomaterials  
MEMS 5607 Introduction to Polymer Blends and Composites  
MEMS 5609 Electronic Materials Processing  
MEMS 5611 Principle and Methods of Micro- and Nanofabrication  
Physics 549 Solid State Physics I  
Physics 550 Solid State Physics II  
Physics 565 Magnetism & Superconductivity

### Teaching Requirements

Students in the PhD program will receive formal pedagogical training by attending a minimum of two Teaching Workshops offered by the Washington University Teaching Center, and will be expected to fulfill a total of at least 15 units of teaching experience with at least 5 units at the basic level and 5 units at the advanced level. A unit of teaching is broadly defined as an hour spent communicating with a group of students or scholars. The teaching requirements must be completed before the student submits his or her doctoral dissertation to the graduate school.

For the basic-level teaching requirement, the following experiences qualify for 1 unit of teaching per event:

- Teach or co-teach a laboratory session
- Conduct an organized recitation or review section of a course

- Deliver a lecture in class using notes provided by the professor of the course
- Lead a journal club session
- Host an outreach activity such as preparing and presenting a lecture and/or demonstration in science at a middle or high school

For the advanced-level teaching requirement, the following experiences qualify for 1 unit of teaching per event:

- Prepare from scratch and deliver a lecture in an IMSE class
- Present a seminar giving the results of the student's own research at an IMSE-wide seminar or at a national meeting. *At least 1 unit must but no more than 5 units may be qualified in this fashion.*

Five units of teaching at the basic level is a minimum. However, if possible, students are encouraged to have additional teaching units at this level, with 10 units being most desirable for teaching development. Each student must submit to the Graduate Studies Committee a form detailing how the teaching requirement was completed.

### Research Rotations

During their first year, students are required to register for and complete one research rotation with IMSE faculty mentors (Core or Affiliate Faculty). A presentation and report on one of the research rotations will be an integral component of the qualifying exam. The rotations are chosen in consultation with the Associate Director of the IMSE (Director of Graduate Studies) and must be mutually agreeable to both the student and the mentor. At the completion of the rotation, the student must submit to the Associate Director a written report approved by the mentor.

### Mathematics

The Department of Mathematics offers two master's degrees, one in Mathematics and the other in Statistics, and two doctoral degrees, one in Mathematics and one in Statistics. To be admitted, an applicant should have, at the very minimum, the equivalent of two semesters of a rigorous advanced calculus course and two semesters of linear algebra or algebra. Most admitted students in the recent past have taken several more advanced courses. 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.

**The AM in Mathematics** requires 36 semester hours of approved course work at the graduate level. In addition, a candidate for the master's degree must pass two of the four PhD written qualifying examinations. A comprehensive AM examination based on Mathematical Analysis, Topology and Algebra may be substituted for the two written qualifying examinations.

**The AM in Statistics** requires 36 semester hours of approved course work, too, but also requires a thesis. Students earn 6 of the 36 credits for conducting thesis research. They defend their thesis in an oral examination.

**The PhD in Mathematics** requires 72 semester hours of approved course work at the graduate level, normally including courses on algebra, measure theory and functional analysis, complex analysis, and geometry/topology. With permission from the Director of Graduate Studies, a student may substitute courses on statistics for either complex analysis or geometry. In addition, students must demonstrate competence in English and one other major mathematical language and must take a qualifying examination. This exam includes four general written examinations, one on each of the four areas of required course work, and oral presentations on two topics. After passing the qualifying examinations, students research, write, defend, and submit their dissertations.

**The PhD in Statistics** requires 72 semester hours of approved course work at the graduate level, including course sequences in both mathematical statistics and linear statistical models, as well as two course sequences in pure mathematics, selected from algebra, measure theory and functional analysis, complex analysis and geometry. In addition, students must demonstrate competence in English and must take a qualifying examination. This exam includes four general written examinations, one on each of the four areas of required course work, and oral presentations on two topics. After passing the qualifying examination, students research, write, defend, and submit their dissertations.

**Email:** kumar@wustl.edu or stenner@wustl.edu

**Phone:** (314) 935-6760

**Departmental website:** <http://wumath.wustl.edu/graduate>

## Chair

### David Wright

PhD, Columbia University  
Affine Algebraic Geometry; Polynomial Automorphisms

## Directors

### Mohan Kumar

Director of Graduate Studies & Professor of Mathematics  
PhD, Bombay University  
Algebraic Geometry; Commutative Algebra

### Ron Freiwald

Professor  
PhD, University of Rochester  
General Topology

## Endowed Professor

### John E. McCarthy

Spencer T. Olin Professor of Mathematics  
PhD, University of California, Berkeley  
Analysis; Operator Theory; One and Several Complex Variables

## Professors

### Quo-Shin Chi

PhD, Stanford University  
Differential Geometry

### Renato Feres

PhD, California Institute of Technology  
Differential Geometry; Dynamical Systems

### Jefferson M. Gill

Professor, Political Science; Courtesy appointment, Mathematics  
PhD, American University

### Steven G. Krantz

PhD, Princeton University  
Several Complex Variables; Geometric Analysis

### Rachel Roberts

PhD, Cornell University  
Low-dimensional Topology

### John Shreshian

PhD, Rutgers University  
Algebraic and Topological Combinatorics

### Edward Spitznagel

PhD, University of Chicago  
Statistics; Statistical Computation; Application of Statistics to Medicine

### Xiang Tang

PhD, University of California, Berkeley  
Symplectic Geometry; Noncommutative Geometry; Mathematical Physics

### Mladen Victor Wickerhauser

PhD, Yale University  
Harmonic Analysis; Wavelets; Numerical Algorithms for Data Compression

## Associate Professors

### Roya Beheshti Zavareh

PhD, Massachusetts Institute of Technology  
Algebraic Geometry

### Brian E. Blank

PhD, Cornell University  
Representations of Lie Groups; Harmonic Analysis

### Jimin Ding

PhD, University of California, Davis  
Statistics

**José Figueroa-López**

PhD, Georgia Institute of Technology  
Statistics; Probability & Stochastic Processes; Mathematical  
Finance

**Matthew Kerr**

PhD, Princeton University  
Algebraic Geometry; Hodge Theory

**Nan Lin**

PhD, University of Illinois at Urbana-Champaign  
Statistics

**Jack Shapiro**

PhD, City University of New York  
Algebraic K-theory

**Brett Wick**

PhD, Brown University  
Analysis of Several Complex Variables; Harmonic Analysis and  
Operator Theory

## Assistant Professors

**Wushi Goldring**

PhD, Harvard University  
Algebraic Number Theory; Algebraic Geometry; Representation  
Theory

**Gregory Knese**

Assistant Professor of Mathematics  
PhD, Washington University  
Complex Function Theory, Operators; Harmonic Analysis

**Todd Kuffner**

Assistant Professor of Mathematics  
PhD, Imperial College London  
Statistics; Likelihood and Asymptotics, Econometrics

**Ari Stern**

Assistant Professor of Mathematics  
PhD, California Institute of Technology  
Geometric Numerical Analysis, Computational Mathematics

**Michael Wendl**

Assistant Professor of Genetics, The Genome Institute, courtesy  
appointment Mathematics Department  
PhD, Washington University  
Combinatorics, PDEs, Probability, and Statistical Genetics

## Professors Emeriti

**William M. Boothby**

PhD, University of Michigan  
Differential Geometry

**Lawrence Conlon**

PhD, Harvard University  
Differential Topology

**Gary R. Jensen**

PhD, University of California, Berkeley  
Differential Geometry

**Robert McDowell**

PhD, Purdue University  
General Topology

**Richard Rochberg**

PhD, Harvard  
Complex Analysis, Interpolation Theory

**Stanley Sawyer**

PhD, California Institute of Technology  
Probability and Statistics; Population Biology, Mathematical  
Genetics

**Guido L. Weiss**

PhD, University of Chicago  
Interpolation of Operators; Harmonic Analysis, Lie Groups

**Edward N. Wilson**

PhD, Washington University  
Harmonic Analysis, Differential Geometry

## Postdoctoral Teaching Fellow

**Han Liang Gan**

PhD, University of Melbourne  
Probability Theory: Approximation of Conditional Random  
Variables

## William Chauvenet Postdoctoral Lecturers

**Xuanyu Pan**

PhD, Columbia University  
Algebraic Geometry

**Songhao Li**

PhD, University of Toronto  
Poisson Geometry, Lie Groupoids and Lie Algebroids

**James Pascoe**

PhD, University of California, San Diego  
Several Complex Variables

## Coordinator Lower Division Teaching

**Blake Thornton**

Coordinator of Lower Division Teaching, Mathematics  
Department  
PhD, University of Utah

## Program Coordinator

**Lisa M. Kuehne**

Program Coordinator University College & Center for Advanced  
Learning  
AM Mathematics, Washington University  
Undergraduate Mathematics Education

## Research

### Faculty Research Projects

A significant measure of outside recognition of the mathematical activities at Washington University is the external grants awarded to its faculty. In the past five years, several dozen research, scholarly and computing projects conducted by Washington University faculty were funded by both federal and private agencies. These have included research grants, grants to purchase computing equipment, grants to run conferences, grants to develop educational projects, grants to develop software and algorithms, and grants to develop collaborations with engineering, statistics, the medical school, and other departments.

Also, Washington University mathematics faculty members are frequent speakers and visitors at other universities around the world. Our faculty members conduct seminars, host colloquia, and organize conferences having to do with their research interests. For more information about our faculty, please visit our website: <http://wumath.wustl.edu/our-people>.

A list of recent publications by members of our faculty can be found at <http://libguides.wustl.edu/math/pubs>.

A few of the research activities recently supported by grants from or contracts with the National Science Foundation or similar agencies:

- Collaborative research in Hodge Theory, Moduli, and Representation Theory (Matthew Kerr, NSF).
- Collaborative research in geometric numerical analysis (Ari Stern, Simon). The cross-disciplinary topic of geometric numerical analysis lies at the intersection of geometry, analysis, and computation. This project proposes to use insights from geometry in order to develop novel numerical methods for differential equations, along with techniques to analyze them.
- Multivariable Operator Theory and Applications (McCarthy, NSF). Holomorphic functions of a single variable can easily be applied to matrices whose spectrum lies in the domain of a function, and this has developed into a very successful and important theory. McCarthy is studying functions of several variables applied to matrices. The theory immediately splits into the commutative and non-commutative cases. In the former, he is investigating when functions of several variables preserve the natural order structure on matrices, and what happens when the size of the matrices becomes infinite (the operator case). Conversely, he is using tools from operator theory to understand functions of several variables, such as characterizing asymptotic expansions of functions in the Pick class (this is called the Hamburger problem in one variable). In the non-commutative case, he is investigating how non-commutative holomorphic functions can be obtained as limits of non-commutative polynomials.

He is also working on applying analytic techniques to improve ultrasound imaging.

- Geometry of projective varieties (Roya Beheshti-Zavareh, Simons). The focus of this project is to investigate questions on moduli spaces of rational curves contained in smooth projective varieties in particular smooth hypersurfaces. The study of geometric properties of these moduli spaces sheds light on the arithmetic and geometric properties of hypersurfaces, and plays an important role in modern enumerative geometry as well as in birational and higher dimensional geometry.
- Noncommutative Geometry of Orbifolds (Xiang Tang, NSA). Orbifolds are interesting geometric objects showing up naturally in the study of many branches of mathematics. In this project, we will use noncommutative geometry tools to study orbifolds. In particular, we will study the deformation theory of orbifold algebras and its connections to the geometry and topology of orbifolds.
- Geometry of projective varieties (Roya Beheshti-Zavareh, SIMONS). The focus of this project is to investigate questions on moduli spaces of rational curves contained in smooth projective varieties in particular smooth hypersurfaces. The study of geometric properties of these moduli spaces sheds light on the arithmetic and geometric properties of hypersurfaces, and plays an important role in modern enumerative geometry as well as in birational and higher dimensional geometry.
- Hodge theory, algebraic cycles, and arithmetic (Matt Kerr, Algebra and Number Theory Program, NSF). This project studies aspects of the theory of period domains and generalized algebraic cycles related to Calabi-Yau varieties and degenerations thereof. It has a particular focus on problems with applications to number theory and physics: automorphic cohomology; irrationality proofs; string dualities; and asymptotics of instanton numbers.
- Symplectic and Spectral Theory of Integrable Systems (Alvaro Pelayo, Geometric Analysis Program, NSF). Investigation of classical and quantum semitoric systems: verifying that the semiclassical joint spectrum of a quantum semitoric system determines completely the system (this is the Spectral Conjecture, widely considered the most spectacular problem in the area); furthering the study of semitoric systems in a more general context, in particular as it regards to the study of the convexity and connectivity properties of the singular Lagrangian fibrations which semitoric systems induce, and which are of special interest in mirror symmetry.
- Problems in Function Theory and Operator Theory (Richard Rochberg, Analysis Program, NSF). This group is working on specific problems in the operator theoretic function theory of spaces of holomorphic functions which are subspaces of potential spaces.

- Operator Theory and Complex Analysis (John McCarthy, Analysis Program, NSF). This group studies the interaction between operator theory and complex analysis in one and several variables. Operator theory can shed light on problems like the boundary behavior of holomorphic functions. Conversely, one can use a combination of function theory and operator theory to help analyze functions that are matrix monotone or matrix convex.
- Noncommutative Geometry: Its Applications to Geometry and Analysis (Xiang Tang, Geometric Analysis Program, NSF). This group studies various problems in geometry using noncommutative geometric tools. This includes index theory on singular spaces, duality of gerbes on orbifolds, Rankin-Cohen deformations and Hopf algebras.
- Algebraic, topological and enumerative combinatorics (John Shareshian, Algebra, number theory, and combinatorics Program, NSF). This group examines a class of lattices appearing in a conjecture that specializes both Shareshian's topological conjecture that there is some finite lattice  $L$  such that there is no finite group  $G$  whose subgroup lattice contains an interval isomorphic with  $L$ , and a combinatorial conjecture of M. Aschbacher.
- Statistical Aggregation in Massive Data Environments (Nan Lin, Statistics Program, NSF). This group develops statistically sound compression and aggregation methods for advanced statistical analysis of data cubes and data streams, uses the compression-then-aggregation strategy to improve computational efficiency of certain statistical analyses, and develops associated asymptotic theories.

## Degree Requirements

### Graduate Programs in Mathematics and Statistics

- Areas of study (Math): Algebra, Algebraic Geometry, Real and Complex Analysis, Differential Geometry, Topology
- Areas of study (Statistics): Mathematical Statistics, Survival Analysis, Modeling, Statistical computing for massive data, Bayesian regularization, Bioinformatics, Longitudinal and Functional Data Analysis, Statistical computation, application of Statistics to Medicine

## Degree Programs and Requirements

PhD students at Washington University are required to demonstrate proficiency in Algebra, Real Analysis, Complex Analysis, and Geometry. Most students satisfy these requirements by taking a yearlong (two semester) course in each subject, capped by a final exam that serves as a "qualifier." Students with strong backgrounds may be excused from some of these courses.

The result of this broad and uniform requirement is two-fold. First, graduate students have an opportunity when they first arrive to share common concerns and to become acquainted. One of the most attractive features of our program is the friendly and supportive atmosphere among the graduate students. Second, advanced courses in the Washington University math department can build on the common background shared by all students. As a result these courses are richer and nearer to the level of PhD work than advanced courses regularly taught at other good mathematics departments.

Typically, it takes two years for a student to complete the written qualifying exam phase of the program. By the end of the second year, the student usually has some idea of which area of specialization to choose. By that time the student is also acquainted with several faculty and feels comfortable asking one to direct his or her research.

Once the qualifying exams are passed and a thesis adviser engaged, the next step in the program is for the student to prepare a "minor oral presentation" and a "major oral presentation." Topics for these orals are chosen in consultation with their thesis adviser, and culminate in two public lectures. These should be completed by the end of the year following completion of the written qualifying exams as well as satisfying their language requirement.

After these preliminaries, the essential part of a student's graduate work — the thesis — begins. Unlike class and exam work, a PhD thesis in mathematics involves producing a substantial piece of new research. The work is difficult, protracted, and frustrating. But in the end the rewards are great.

While working on their orals and their research, students have the opportunity to take a variety of advanced courses. These vary from semester to semester. See our current course schedule and WebSTAC for details.

When the research is completed the student prepares a thesis, which is the detailed writeup of the new results obtained. This writeup may range from 50 to a few hundred pages and is the formal record of the student's achievement in the graduate program. The final official step is for the student to defend the thesis in a public lecture followed by questions from a panel of appointed faculty members of the university in a closed session.

Students typically complete the PhD program in five years. A student who comes here with advanced preparation may finish in less time. On the other hand, some students find that it is advisable for them to take preparatory work before attempting the qualifying courses. In special cases, the time schedule may be lengthened accordingly. Students should plan to develop a close relationship with their thesis advisers so that they may have a realistic idea of their progress.

Graduate study in mathematics is not for everyone. Entering students usually find that the time and effort required to succeed goes well beyond anything they encountered as undergraduates.

Success requires both ample mathematical ability and the determination to grapple with a subject for many days or weeks until the light of understanding shines through. The experience can be daunting. Those who continue in their studies are largely those for whom the pleasure in attaining that understanding more than compensates the required effort. For such persons, the life of a mathematician can be richly rewarding.

## AM in Mathematics

**General requirements:** The minimum residence requirement is one full academic year of graduate study. 36 semester hours of graduate-level course work is required, with or without thesis, but 6 units may be for thesis research. If the department consents, a student may transfer up to 6 hours from other universities. A grade point average of "B" or better must be maintained in graduate course work.

**Course requirements:** There are four basic graduate courses in pure mathematics: 5021-5022, 5031-5032, 5041-5042, and 5051-5052. A candidate for the AM in Mathematics must include two of these sequences (12 hours) in the required 36 hours. The student, in consultation with his or her adviser, will select the remaining 24 hours according to the student's interests and needs.

**The AM examination:** Candidates for the AM degree must pass at least two of the four PhD qualifying exams. Under exceptional circumstances, the graduate committee may allow the student to substitute the PhD qualifying exams mentioned above with a comprehensive examination on the contents of Math 411-412, 417-418, and 429-430.

## AM in Statistics

**General requirements:** 36 units of course work and a thesis. 6 units may be for thesis research. The minimum residence requirement is one full academic year of graduate study. A grade point average of "B" or better must be maintained in graduate course work.

**Course requirements:** The student must take (or have taken) the following five required courses in mathematics or their equivalents: Math 493 Probability and Math 494 Mathematical Statistics, or 5061 and 5062 (theory of statistics); Math 429 Linear Algebra or Math 4392 Advanced Linear Statistical Models; Math 439 Linear Statistical Models; and Math 475 Statistical Computation or a suitable substitute elective approved by the department. In the case that an equivalent course has been taken and also proficiency in the course material has been demonstrated, other 400-level and above electives may be substituted in consultation with the adviser.

Additional 400-level or higher electives will be chosen by the student in consultation with his or her adviser to make up the 36 units. Typically, at most two electives shall be chosen from outside the mathematics department. If not taken before, a course in C programming is strongly recommended but cannot

be included among the courses used to satisfy the 36 units requirement.

**Possible electives include:**

*Math 4111 Introduction to Analysis (F)*  
*Math 4121 Introduction to Lebesgue Integration (S)*  
*Math 420 Experimental Design (SE)*  
*Math 4301 Multilevel Modeling (Pol Sci 584C) (F)*  
*Math 434 Survival Analysis (FO)*  
*Math 4392 Advanced Linear Statistical Models (SO)*  
*Math 449 Numerical Applied Mathematics (F)*  
*Math 459 Bayesian Statistics (S)*  
*Math 495 Stochastic Processes (SO)*  
*Math 5061-62 Theory of Statistics I,II (F),(S)*  
*Math 523C Information Theory and Statistics (ESE 523)*  
*Math 5021 Complex Analysis I (F)*  
*Math 5022 Complex Analysis II (S)*  
*Math 5031 Algebra I (F)*  
*Math 5032 Algebra II (S)*  
*Math 5041 Geometry I (F)*  
*Math 5042 Geometry II (SE)*  
*Math 5051 Measure Theory and Functional Analysis I (F)*  
*Math 5052 Measure Theory and Functional Analysis II (S)*  
*Math 551 Advanced Probability I*  
*Math 552 Advanced Probability II*  
*Biol 4181 Population Genetics*  
*Biol 5483 01 Human Linkage and Association Analysis*  
*Biol 5495 01 Computational Molecular Biology*  
*CSE 514A Data Mining*  
*MEC 670 Seminar in Econometrics*  
*ESE 522 Random Variables and Stochastic Processes II*

Please note: Not all courses are offered each year. Courses are listed in numerical order. The letters in parentheses after the name of a course mean:

- F = offered each fall
- FO = offered each fall in odd-numbered years
- FE = offered each fall in even-numbered years
- S = offered each spring
- SO = offered each spring in odd-numbered years
- SE = offered each spring in even-numbered years

Math courses listed without one of these codes are offered based on demand.

## PhD in Mathematics

No one can earn a doctorate merely by completing a specified course of study; the doctoral candidate must demonstrate high scholarship and the ability to perform significant original research in mathematics.

- **General requirements:** Completion of the PhD requires four full years of graduate study (72 hours), with at least 48 hours spent in residence at Washington University. The

student must spend at least one academic year as a full-time student; this requirement cannot be met wholly by summer sessions or part-time study. The student may, with departmental permission, transfer a part of the 72 hours from other universities. The typical load is 9 credit hours per semester. A grade point average of "B" or better is required in graduate course work.

Graduate students in mathematics may ordinarily expect up to five years of support. Continuation of support each year is dependent upon normal progress toward the degree and satisfactory performance of duties.

For the well-prepared student, "normal progress" usually means: At the end of his or her second year, the student should have successfully completed the four qualifying exam course sequences; at the end of the third year, the student should have completed the major and minor oral exams and the language requirement; by the end of the fourth year, the student should have completed the 72-hour course requirement, and should be making substantial progress on a thesis.

Please note, however, that the sequence outlined above is for "well-prepared" students. The exact point at which any student enters the sequence depends upon his or her ability and background. When warranted, we will deviate from the normal sequence, and tailor a program that fits the student's ability and background.

- **Specific course requirements:** The 72 hours of course work must include four basic graduate sequences: Math 5021-5022, 5031-5032, 5041-5042, 5051-5052. In exceptional circumstances, departmental permission may be requested to replace one of these sequences with a suitable alternative. The student may also petition the department to waive one or more of the sequences because of work done previously.

It is in each student's best interest to take the four sequences that contain the material covered in the qualifying exams as soon as their individual program allows. Sequels to these courses, at the 500 level, are frequently offered; the qualifying exam courses are generally prerequisites to these 500-level courses.

- **Language requirement:** Most research literature in mathematics is written in English, French, German, or Russian. Consequently the department requires two of these languages for the PhD. If the student's native language is English, then he or she must demonstrate competence in one of the other three languages by either:
  - submitting an undergraduate transcript showing one year of one of these languages passed with a grade of C or better;

- taking a one-semester course in one of these languages while a graduate student at Washington University, and passing with a grade of "B" or better; or

- passing one of the annual written exams given by the department in mathematical French or German or Russian; to pass, the student must translate a passage in the language from a mathematics journal or book.

- **Qualifying examinations:** The qualifying exam is in two parts. One is a series of four written tests covering a range of topics, and one is an oral exam on two selected topics.

The written tests cover the material in the four basic course sequences: 5021-5022, 5031-5032, 5041-5042, and 5051-5052. Each spring, at the end of each sequence, all students enrolled in the course take a two-hour final exam; this exam usually covers the second half of the sequence. Doctoral candidates take an additional one-hour exam which covers the entire sequence. To pass the qualifying exam in one of the four areas, the student must pass the three hour combined exam.

Because each sequence varies somewhat in content from year to year, it is recommended that the student take each set of exams at the conclusion of the sequence in which he or she is enrolled. No advantage is gained by delaying the exam for a year. It is desirable to make every effort to finish all four exams by the end of the second year of study.

Some students will enter the PhD program with previously acquired expertise in one or more of the four basic sequences. This sometimes happens with students who transfer from other PhD programs or who come from certain foreign countries. Such students may formally petition the Chairman of the Graduate Committee to be exempted from the appropriate course and from its qualifying exam. The petition must be accompanied by hard evidence (e.g., published research, written testimony from experts, records of equivalent courses, or examinations and the grades achieved on them). The Graduate Committee will make the final judgment on all exemption requests.

Once the written phase of the qualifying process is complete, the student is ready to begin specialized study. The oral component of the qualifying exam is designed to expedite this process. Along with a committee of at least two faculty members, the student selects one major and one minor topic, and a body of literature dealing with each. The student then usually spends a semester studying the selected material. At the end of this period the student demonstrates mastery of each of the two selected topics by means of satisfactory oral expositions to a faculty committee. One member of this committee will in all likelihood become the student's thesis adviser and may have already agreed to be the adviser. The preparatory work for the presentation often becomes the foundation on which the thesis is constructed.

Following the oral and language exams, work on the thesis begins.

- **The dissertation and final oral exam:** The student's dissertation is the single most important requirement for the PhD degree: It must be an original contribution to mathematical knowledge. This is the student's opportunity to conduct significant independent research.

It is the student's responsibility to find a thesis adviser who is willing to guide her or his research. Since the adviser should be part of the major and minor orals committee, the student should have engaged an adviser by the end of the third year of study.

Once the department has accepted the dissertation (on the advice of the thesis adviser), the student is required to pass a final oral examination. Part of this procedure is a question/answer period in which the student is expected to "defend" the thesis.

For information about preparing the thesis and its abstract, and about the deadlines involved, please consult the following items from the Graduate School of Arts and Sciences: the Doctoral Dissertation Guide at [http://graduateschool.wustl.edu/files/graduate/Doctoral\\_Dissertation\\_Guide.pdf](http://graduateschool.wustl.edu/files/graduate/Doctoral_Dissertation_Guide.pdf), the forms page at <http://graduateschool.wustl.edu/forms>, and the Policies and Guides page at <http://graduateschool.wustl.edu/policies-and-guides>. For a sample thesis TeX file and style file go to <http://wumath.wustl.edu/links>.

## PhD in Statistics

### Degree Requirements Summary

Total of 72 graduate units required, consisting of:

- 24 required course work units total in fundamental topics and exam fields
- 12 elective course work units
- 6 course work units for staffing a walk-in statistical consulting center to be setup by the department
- 4 qualifying exams: 2 in statistics, 2 in mathematics
- Graduate School Teaching Requirement for PhD Students
- Major and minor oral presentation
- Dissertation research, thesis preparation, and defense (30 course work units)

**General Requirements:** Completion of the PhD requires four full years of graduate study (72 hours), with at least 48 hours spent in residence at Washington University. The student must spend at least one academic year as a full-time student; this requirement cannot be met wholly by summer sessions or part-time study. The student may, with departmental permission, transfer a part of the 72 hours from other universities. The typical

load is 9 credit hours per semester. A grade point average of "B" or better is required in graduate course work.

Graduate students in statistics may ordinarily expect up to five years of support. Continuation of support each year is dependent upon normal progress toward the degree and satisfactory performance of duties. Teaching experience is an increasingly important component of graduate education for students who seek employment in academics. The PhD in Statistics program provides the opportunity for students to serve as teaching assistants to learn how to teach technical topics to students with a wide range of backgrounds.

For the well-prepared student, normal progress usually means: At the end of his or her second year, the student should have successfully completed the four qualifying exam course sequences (two on mathematical subjects, two on statistical subjects); at the end of the third year, the student should have completed the major exam in one of two statistics subjects, the minor oral exam in one of two pure mathematics subjects, and the language requirement; by the end of the fourth year, the student should have completed the 72-hour course requirement, and should be making substantial progress on a thesis.

Please note, however, that the sequence outlined above is for "well-prepared" students. The exact point at which any student enters the sequence depends upon his or her ability and background. When warranted, we will deviate from the normal sequence, and tailor a program that fits the student's ability and background.

**Specific course requirements:** The 72 hours of course work must include two basic graduate statistic sequences: Math 5061 Theory of Statistics I - Math 5062 Theory of Statistics II; Math 439 Linear Statistical Models - Math 4392 Advanced Linear Statistical Models; and any two of the following pure math sequences: Math 5021-5022, 5031-5032, 5041-5042, or 5051-5052. In exceptional circumstances, departmental permission may be requested to replace one of these sequences with a suitable alternative. The student may also petition the department to waive one or more of the sequences because of work done previously. Prerequisites, if needed, are Math 429 Linear Algebra (0 credits towards the degree) and Math 233 Calculus III (0 credits towards the degree).

It is in each student's best interest to take the four sequences that contain the material covered in the qualifying exams as soon as their individual program allows. Sequels to these courses, at the 500 level, are frequently offered; the qualifying exam courses are generally prerequisites to these 500-level courses.

Electives allow students to develop their own tracks in advanced statistical theory, applied engineering, and biostatistics. Statistics elective courses include:

Math 420 Experimental Design  
Math 425C, Multilevel Models in Quantitative Research  
Math 434 Survival Analysis

Math 449 Numerical Applied Mathematics  
Math 456 Topics in Financial Mathematics  
Math 459 Bayesian Statistics  
Math 475 Statistical Computation  
Math 495 Stochastic Processes  
Math 523C, Information Theory and Statistics (ESE 523)  
Math 551, Advanced Probability I  
Math 552, Advanced Probability II  
ESE 405 Reliability and Quality Control  
ESE 407 Analysis and Simulation of Discrete Event Systems  
ESE 415 Optimization  
ESE 425 Random Processes and Kalman Filtering  
ESE 428, Probability  
ESE 520, Probability and Stochastic Processes  
ESE 521, Random Variables and Stochastic Processes I  
ESE 522, Random Variables and Stochastic Processes II  
ESE 523, Information Theory  
CSE 511A, Introduction to Artificial Intelligence  
CSE 514A, Data Mining  
CSE 517A, Machine Learning  
CSE 519T, Advanced Machine Learning  
CSE 541T, Advanced Algorithms  
Biostatistics M19-550, Randomized Controlled Trials  
Biostatistics M21-623, Advanced Topics in Biostatistics  
Econ 5145, Advanced Theoretical Econometrics

**Language requirement:** A student whose native language is not English must demonstrate proficiency in English. The student will also be expected to become fluent in spoken English. In particular, any student who expects to gain teaching experience while pursuing a degree will need to do this as soon as possible.

Ordinarily, otherwise qualified students who score less than 600 on the Test of English as a Foreign Language (TOEFL) are not admitted into the program. If English is not the student's native language, he or she must pass an oral English proficiency exam with a grade of "3" or better. If the student does not score a "3" the first time he or she takes the exam, the director of the English Language Program at the International Office will recommend taking one or more classes to improve reading, writing, pronunciation, listening or speaking skills. After the recommended classes have been completed, the student is required to retake the English proficiency exam. Once the student has demonstrated the ability to handle teaching a class (by scoring a "3" or better on the exam), he or she will qualify for a Teaching Assistantship or teaching duties. All students are expected to fulfill the language requirement during their first two years of graduate study.

**Qualifying examinations:** The qualifying exam is in two parts. One is a series of four written tests covering a range of topics, and one is an oral exam on two selected topics.

The written tests cover the material in the two basic statistics course sequences: Math 5061-5062, Math 439-4392, and the candidate's two chosen pure math sequences: Math 5021-5022, 5031-5032, 5041-5042, or 5051-5052. Each spring, at the end

of each sequence, all students enrolled in the course take a two-hour final exam; this exam usually covers the second half of the sequence. Doctoral candidates take an additional one-hour exam which covers the entire sequence. To pass the qualifying exam in one of the four areas, the student must pass the three hour combined exam.

Because each sequence varies somewhat in content from year to year, it is recommended that the student take each set of exams at the conclusion of the sequence in which he or she is enrolled. No advantage is gained by delaying the exam for a year. It is desirable to make every effort to finish all four exams by the end of the second year of study.

Some students will enter the PhD program with previously acquired expertise in one or more of the four basic sequences. This sometimes happens with students who transfer from other PhD programs, or who come from certain foreign countries. Such students may formally petition the Chairman of the Graduate Committee to be exempted from the appropriate course and from its qualifying exam. The petition must be accompanied by hard evidence (e.g., published research, written testimony from experts, records of equivalent courses, or examinations and the grades achieved on them). The Graduate Committee will make the final judgment on all exemption requests.

Once the written phase of the qualifying process is complete, the student is ready to begin specialized study. The oral component of the qualifying exam is designed to expedite this process. Along with a committee of at least two faculty members, the student selects one major and one minor topic, and a body of literature dealing with each. The student then usually spends a semester studying the selected material. At the end of this period the student demonstrates mastery of each of the two selected topics by means of satisfactory oral expositions to a faculty committee. One member of this committee will in all likelihood become the student's thesis adviser and may have already agreed to be the adviser. The preparatory work for the presentation often becomes the foundation on which the thesis is constructed.

Following the oral and language exams, work on the thesis begins.

**The dissertation and final oral exam:** The student's dissertation is the single most important requirement for the PhD degree. It must be an original contribution to statistical knowledge. This is the student's opportunity to conduct significant independent research.

It is the student's responsibility to find a thesis adviser who is willing to guide his or her research. Since the adviser should be part of the major and minor orals committee, the student should have engaged an adviser by the end of the third year of study.

Once the department has accepted the dissertation (on the advice of the thesis adviser), the student is required to pass a final oral examination. Part of this procedure is a question/

answer period in which the student is expected to "defend" the thesis.

For information about preparing the thesis and its abstract, and about the deadlines involved, please consult the following items from the Graduate School of Arts and Sciences: the Doctoral Dissertation Guide at [http://graduateschool.wustl.edu/files/graduate/Doctoral\\_Dissertation\\_Guide.pdf](http://graduateschool.wustl.edu/files/graduate/Doctoral_Dissertation_Guide.pdf), the forms page at <http://graduateschool.wustl.edu/forms>, and the Policies and Guides page at <http://graduateschool.wustl.edu/policies-and-guides>.

## Movement Science

### PhD in Movement Science

The PhD in Movement Science is an interdisciplinary program designed to prepare students for productive research careers in academia and industry. The program offers training to investigators who seek to answer questions about human movement, its functions and dysfunctions. The program is organized around three core content areas: biocontrol (neuroscience), bioenergetics (exercise physiology), and biomechanics. Our students are trained to investigate and improve movement impairments in people with chronic diseases such as obesity, stroke, diabetes, neuropathy, Parkinson's disease, and low back pain.

The Movement Science Program is administered through the Program in Physical Therapy. Applicants come from a variety of academic backgrounds: physical therapy, exercise science, kinesiology, biomedical engineering, neuroscience, and occupational therapy. Students learn from, and collaborate with, scientists from multiple departments with colleagues in medicine, psychiatry, orthopedics, biomedical engineering, psychology, and biology.

Applicants must hold a baccalaureate degree from an accredited college or university. The majority of students hold a master's degree but one is not required for admittance. All applicants should possess the knowledge and skills normally derived from courses in biology, calculus, chemistry, computer science, human anatomy, physics, physiology, and statistics. In exceptional cases, applicants with deficient prerequisites may be admitted on condition that these deficiencies will be made up in the first year. Applications for admission must be submitted by December 1. An interview day for selected applicants is held in January.

On average, students complete the degree in 4.5 years. Students work closely with their research mentor, generally working in the lab 15-20 hours a week in their first two years and full-time thereafter. Students complete required course work during the first two years.

Accepted students receive full tuition remission, a stipend, and health insurance. The Movement Science Program is supported by NIH training grant T32HD007434.

**Contact Person:** Alisa Cooperstein  
**Phone:** (314) 495-0504  
**E-mail:** [acooperstein@wustl.edu](mailto:acooperstein@wustl.edu)  
**Departmental website:** <https://pt.wustl.edu/Education/DoctoralEducation/PhDinMovementScience/Pages/PhDinMovementScience.aspx>

### Chair

**Gammon M. Earhart**

Professor  
PhD, Washington University  
Neural control of locomotion in people with Parkinson's disease

### Professors

**Catherine E. Lang**

PhD, Washington University  
Stroke recovery and rehabilitation, Neurorehabilitation

**Michael J. Mueller**

PhD, Washington University  
Metabolic and movement factors in people with diabetes mellitus (DM)

**Susan B. Racette**

PhD, University of Chicago  
Dietary and exercise interventions for health promotion and disease prevention

**David R. Sinacore**

PhD, West Virginia University  
Diabetic foot disease, contributors to physical frailty in older adults

**Linda R. Van Dillen**

PhD, Washington University  
Musculoskeletal pain problems in the low back, hip and neck

**Dequan Zou**

DSc, Washington University  
Biomechanics modeling and computer simulation

### Associate Professors

**W. Todd Cade**

PhD, University of Maryland, Baltimore  
Mechanisms and treatments of metabolic diseases

**B. Ruth Clark**

PhD, St. Louis University  
Promotion of nutrition and exercise in urban residents

**Joseph W. Klaesner**  
PhD, Vanderbilt University  
Rehabilitation engineering

## Assistant Professors

**Gretchen A. Meyer**  
PhD, University of California, San Diego  
Mechanical and cellular contributors to skeletal muscle disease

**Diana C. Parra Perez**  
PhD, Washington University  
Physical activity and healthy diets and their role in preventing chronic disease and obesity

## Degree Requirements

The Movement Science Program course work is divided into 35 semester units of required courses and 37 semester units of electives. Elective course work supports the interdisciplinary mission of the Movement Science Program. Students complete required course work during the first two years.

In addition to course work, the requirements to complete the PhD degree include:

- **Qualifying Examination:** Students will take their qualifying exams after two years of full-time study. Part One is a written exam to assess the knowledge about the three curriculum cores (biocontrol, bioenergetics, and biomechanics). Part Two requires the student to develop a research proposal pertinent to his or her projected area of dissertation research.
- **Laboratory Research:** Students will develop, implement, and complete original laboratory research appropriate for a doctoral dissertation.
- **Doctoral Dissertation:** Students will successfully defend an oral defense of their dissertation proposal, complete a written doctoral dissertation, and defend an oral presentation of the doctoral dissertation.

The student must complete all of the course requirements while classified as a "doctoral student." The student is considered a "doctoral candidate" after completion of the qualifying examinations.

## Music

The Department of Music offers programs of study leading to the Doctor of Philosophy in Music (emphasizing musicology or music theory), and the Master of Arts in Music (emphasizing musicology or music theory). Each graduate program combines a course of advanced studies in one area of music studies with supporting studies in related fields of music. The number of graduate students admitted each year is small, so each student is assured individual attention. There is traditionally close rapport and mutually supportive interaction among graduate students in all areas of study.

The **AM and PhD programs in musicology** offer concentrations in historical musicology and ethnomusicology. Department faculty interests cover all eras of European art music, American popular musics, film and theatre music, jazz, and Turkish and other Middle Eastern musics. Methodological approaches cover a range of critical perspectives, placing music within its cultural and historical contexts and developing the student's ability to think and write about music and music-making. Intensive study in music theory is a required component of the program. Diverse opportunities for performance are offered as well.

The **AM and PhD programs in music theory** focus on creative analysis and critical examination of assumptions about music and musical discourse. The graduate program prepares students to undertake research in musical analysis and in the language and methodology of music theory. Preparation includes guiding each student in developing their own modes of thought and expression. Faculty interests include improvisation and intermedia, texture and form, music cognition and computational modeling, composition, Schenker, and the interplay of text and music in German artsong.

**Contact Person:** Kim Daniels  
**Phone:** (314) 935-5566  
**E-mail:** daniels@wustl.edu  
**Departmental website:** <http://music.wustl.edu/graduate>

## Chair

**Todd Decker**  
PhD, University of Michigan

## Professors

**Seth Carlin**  
MS, Juilliard School of Music

**Jeffrey Kurtzman**  
PhD, University of Illinois

**Dolores Pesce**  
PhD, University of Maryland

## Associate Professors

**Patrick Burke**  
PhD, University of Wisconsin

**Todd Decker**  
PhD, University of Michigan

**Robert Snarrenberg**  
PhD, University of Michigan

## Assistant Professors

**Ben Duane**  
PhD, Northwestern University

**Denise Elif Gill**

PhD, University of California, Santa Barbara

**Christopher Stark**

DMA, Cornell University

**Alexander Stefaniak**

PhD, Eastman School of Music

**Paul Steinbeck**

PhD, Columbia University

## Professor of Practice

**William Lenihan**

BMus, University of Missouri, Columbia

## Senior Lecturer

**Christine Armistead**

MM, Washington University

## Lecturers

**Nicole Aldrich**

DMA, University of Maryland

**Ruth Mueller**

PhD, University of Sheffield

## Postdoctoral Teaching Fellow

**Rachel Vandagriff**

PhD, University of California, Berkeley

## Professors Emeriti

**Hugh Macdonald**

PhD, Cambridge University

**Craig Monson**

PhD, University of California, Berkeley

**Robert Wykes**

DMA, University of Illinois

## Degree Requirements

### Master of Arts in Musicology

The Master of Arts in musicology requires 36 units of graduate study, including 12 units of music history and bibliography, 6 units of music theory, 18 units of electives, keyboard proficiency, reading knowledge of one foreign language, and a thesis.

### PhD in Musicology

The PhD degree in musicology requires a total of 72 units of graduate study: 33 units of music history and bibliography, 12 units of music theory, 1 unit of pedagogy, 6 units outside music, 20 units of electives and dissertation research. Also required are keyboard proficiency, reading knowledge of two foreign languages (German and either French, Italian or Latin, or a substitute, according to the student's needs), written and

oral qualifying examinations (which occur after the completion of 60 units), the dissertation and the final oral defense of the dissertation. Students who have completed a master's degree at another institution may receive up to 24 units of transfer credit toward the PhD.

## Master of Arts in Music Theory

The Master of Arts in music theory requires 36 units of graduate study, including 15 units of music theory, 9 units of music history and bibliography, 12 units of electives, keyboard proficiency, reading knowledge of one foreign language, and a thesis.

## PhD in Music Theory

The PhD degree in music theory requires a total of 72 units of graduate study, including 24 units of music theory, 15 units of music history and bibliography, 6 units of composition, 1 unit of pedagogy, 6 units outside music, and 20 units of electives or dissertation research. Also required are keyboard proficiency, reading knowledge of two foreign languages (German and either French or Italian; a computer language may be substituted for the second language according to the student's need), written and oral qualifying examinations, and a dissertation with a final oral defense of the dissertation. Students who have completed a master's degree at another institution may receive up to 24 units of transfer credit toward the PhD.

## Philosophy

The Department of Philosophy houses two doctoral programs: a PhD in Philosophy and an interdisciplinary PhD in Philosophy-Neuroscience-Psychology (PNP). The Philosophy program covers a broad array of philosophy, with particular strengths in ethics, moral psychology, and political philosophy; philosophy of mind, philosophy of language, and metaphysics; and the history of philosophy. The PNP program draws on a core faculty in philosophy and on Washington University's exceptional psychology and neuroscience programs.

The department accepts about 10% of the applicants to these programs and maintains about 25 students in both programs. We are especially open to interdisciplinary work and are committed to providing methodologically and substantively broad training. Applicants from a wide range of backgrounds are welcome; the most successful applicants have evidence of philosophical talent and promise.

Both programs take six years, during which all PhD students are fully supported. The first six or seven semesters are dedicated primarily to course work, which may include independent studies and courses in other programs, such as classics, law, political science, and women's studies. Students in their first seven semesters must also complete two or three qualifying papers that bridge the gap between seminar papers and professional publications. In addition, the department houses two dissertation workshops, one required for Philosophy students in their third year and beyond and the other for PNP students in all years.

Students in their fourth year finish their third qualifying paper, devise a dissertation prospectus, and defend the prospectus in an oral exam. Then, the fifth year typically offers fellowship support to draft the full dissertation, before a sixth year is given over to revisions, a required colloquium, and job applications.

The department also works hard to prepare its students as teachers and as potential academic job applicants. Students typically serve as teaching assistants for four of their six years in residence, and teach at least one of their own courses in University College or Summer School. Placement efforts begin during the first-years' orientation and intensify in the spring of the student's fifth year.

**Contact Person:** Dee Stewart  
**Phone:** (314) 935-5119  
**E-mail:** [stewart.d@wustl.edu](mailto:stewart.d@wustl.edu)  
**Departmental website:** <http://philosophy.artsci.wustl.edu/graduate>

## Chair

**Christopher (Kit) Wellman**  
Professor, Philosophy  
PhD, University of Arizona

## Professors

**Carl F. Craver**  
Professor, Philosophy and Philosophy-Neuroscience-Psychology  
PhD, University of Pittsburgh

**Dennis DesChene**  
Professor, Philosophy  
PhD, Stanford University

**John Doris**  
Professor, Philosophy and Philosophy-Neuroscience-Psychology  
PhD, University of Michigan

**Julia Driver**  
Professor, Philosophy  
PhD, Johns Hopkins University

**Claude Evans**  
Professor, Philosophy  
PhD, State University of New York–Stony Brook

**John Heil**  
Professor, Philosophy  
PhD, Vanderbilt University

**Mark Rollins**  
Professor, Philosophy  
PhD, Columbia University

**Roy Sorensen**  
Professor, Philosophy  
PhD, Michigan State University

## Associate Professors

**Anne Margaret Baxley**  
Associate Professor, Philosophy  
PhD, University of California, San Diego

**Eric Brown**  
Associate Professor, Philosophy  
PhD, University of Chicago

**Ronald Mallon**  
Director, Philosophy-Neuroscience-Psychology; Associate Professor, Philosophy  
PhD, Rutgers University

**Christopher (Casey) O'Callaghan**  
Associate Professor, Philosophy  
PhD, Princeton University

**Anya Plutynski**  
Associate Professor, Philosophy  
PhD, University of Pennsylvania

## Assistant Professors

**Brett Hyde**  
Assistant Professor, Philosophy, Philosophy-Neuroscience-Psychology, and Linguistics  
PhD, Rutgers University

**Charlie Kurth**  
Assistant Professor, Philosophy  
PhD, University of California, San Diego

**Elizabeth Schechter**  
Assistant Professor, Philosophy, Philosophy-Neuroscience-Psychology  
PhD, University of Maryland

**Julia Staffel**  
Assistant Professor, Philosophy  
PhD, University of Southern California

## Postdoctoral Research Fellows

**Julia Haas**  
PhD, Emory University

**Irina Mikhalevich**  
PhD, Boston University

**Natalia Washington**  
PhD, Purdue University

## Professors Emeriti

**Robert Barrett**  
Emeritus Professor of Philosophy  
PhD, Johns Hopkins University

**William Gass**

Emeritus Professor of Philosophy, David May Distinguished  
University Professor in the Humanities  
PhD, Cornell University

**Roger Gibson**

Emeritus Professor of Philosophy  
PhD, University of Missouri

**Lucian Krukowski**

Emeritus Professor of Philosophy  
PhD, Washington University

**Stanley Paulson**

William Gardiner Hammond Professor of Law, Professor of  
Philosophy  
PhD, University of Wisconsin-Madison

**Jerome Schiller**

Emeritus Professor of Philosophy  
PhD, Harvard University

**Joe Ullian**

Emeritus Professor of Philosophy  
PhD, Harvard University

**Richard Watson**

Emeritus Professor of Philosophy  
PhD, University of Iowa

**Carl Wellman**

Emeritus Professor of Philosophy, Hortense and Tobias Lewin  
Distinguished University Professor in the Humanities  
PhD, Harvard University

## Degree Requirements

### PhD in Philosophy-Neuroscience- Psychology (PNP)

Successful completion of 72 units of courses and seminars at the 400 level or above (with the exception of Phil 301G Symbolic Logic) in a way that meets both the detailed course requirements and the following minima:

1. 33 units of Philosophy course work
2. 18 units of empirical course work/laboratory work
3. Participation in the PNP Dissertation Seminar (PNP 501) in semesters when it is offered.
4. Regular attendance at the weekly Philosophy Colloquium, except with the permission of the director of PNP.
5. Completion of two qualifying papers, to be submitted on the first day of Years 2 and 3 respectively. (There should be no significant overlap within the two papers.)
6. Satisfaction of any colloquium requirement imposed by the department
7. Completion and defense of a dissertation prospectus (typically during the fourth year)

8. Completion and defense of a dissertation

### Additional Information

For the PNP Graduate Checklist, visit: [http://pnp.artsci.wustl.edu/files/pnp/imce/pnp\\_grad\\_new\\_certification\\_list\\_33\\_units.pdf](http://pnp.artsci.wustl.edu/files/pnp/imce/pnp_grad_new_certification_list_33_units.pdf)

For additional information, visit: <http://pnp.artsci.wustl.edu/graduate>.

Please contact the department for further requirements.

### PhD in Philosophy

1. Every student must complete the logic requirement, either by passing the exam given during orientation or by receiving at least a B in Phil 301G Symbolic Logic or Phil 405 Philosophical Logic.
2. Every student must complete at least 42 units of graduate-level (400-level or above) philosophy courses, each with at least a B-. No units can be transferred from other institutions. These units must include the following distribution requirements:
  - a. Phil 502 Proseminar, taken in the first semester
  - b. at least two additional 500-level seminars
  - c. at least two core surveys in theoretical philosophy (Phil 4141 Advanced Epistemology, Phil 4142 Advanced Metaphysics, Phil 4065 Advanced Philosophy of Language, Phil 4210 Topics in Advanced Philosophy of Science)
  - d. at least two core surveys in practical philosophy (Phil 4315 Normative Ethical Theory, Phil 4310 20th-century Metaethics, Phil 4320 British Moralists, Phil 4400 Advanced Social and Political Philosophy)
  - e. at least one core survey in ancient philosophy (Phil 451 Plato, Phil 452 Aristotle, Phil 4530 Hellenistic Philosophy)
  - f. at least one core survey in modern philosophy (Phil 4550 Continental Rationalism, Phil 4560 Empiricism, Phil 4575 Kant and Kantian Practical Philosophy, Phil 4570 Kant's Critique of Pure Reason)
3. Additional work to 72 hours (at the 400 or 500 level; may consist of directed research Phil 591 or additional, germane course work)
4. Completion of teaching requirements
5. Completion of three qualifying papers, to be submitted on the first day of Years 2, 3 and 4 respectively
6. Completion of dissertation requirements
7. Completion of colloquium requirements

### Additional Information

For the Philosophy Graduate Checklist, visit: [http://philosophy.artsci.wustl.edu/files/philosophy/imce/phil\\_grad\\_certification.pdf](http://philosophy.artsci.wustl.edu/files/philosophy/imce/phil_grad_certification.pdf).

For additional information, visit: <http://philosophy.artsci.wustl.edu/graduate>.

Please contact the department for further requirements.

## Physics

The Department of Physics offers AM and PhD programs in physics. Research covers a wide area of experimental and theoretical physics, and benefits from close contacts with nuclear and inorganic chemists in the chemistry department, planetary scientists in the earth and planetary sciences department, applied scientists in the engineering school, and biological scientists both on the Danforth Campus and at the medical school. The department is a major participant in the McDonnell Center for the Space Sciences.

Experimental research areas include:

- astrophysics (observations of cosmic rays, gamma rays, X-rays, high-precision tests of gravity)
- space sciences (laboratory analysis of meteorites, stardust, and interplanetary dust particles)
- condensed matter and materials physics (graphene and other two-dimensional atomic crystals, quantum information, devices, and electrodynamics, amorphous materials, nanostructures, mesoscopic physics, quantum magnetism, metallic glasses, magnetism and superconductivity, high-pressure physics, hydrogen storage solids)
- biological and biomedical physics (hyperpolarized magnetic resonance imaging, ultrasound, biophysics of the brain).

Theoretical research areas include:

- biophysics (nonequilibrium dynamics in biological cells)
- condensed matter physics (strongly correlated electron systems, topological phases, excited states of many-electron systems, density functional theory)
- elementary particle physics (astroparticle physics, dark matter, theoretical cosmology, lattice gauge theory, non-Hermitian Hamiltonians, quark matter)
- many-body theory (nuclear matter, correlations in nuclei).

Students are usually admitted to the PhD program rather than to the AM. They spend their first two years doing graduate course work, finding a dissertation adviser, and starting research. During that time they receive a stipend and have teaching assistantship duties for only two semesters. After achieving the required course grades and passing an oral examination at the end of their second year, students are normally paid from research funds while working on their research and writing a dissertation. The PhD program typically takes between five and six years to complete.

**Departmental website:** <http://physics.wustl.edu>

## Chair

### Mark Alford

PhD, Harvard University  
Elementary Particle Physics

## Endowed Professors

### Carl M. Bender

Wilfred R. and Ann Lee Konneker Professor of Physics  
PhD, Harvard University  
Elementary Particles

### John W. Clark

Wayman Crow Professor of Physics  
PhD, Washington University  
Many-Body Theory, Biophysics

### Ramanath Cowsik

James S. McDonnell Professor of Space Sciences  
PhD, University of Bombay  
Astrophysics & Space Sciences

### Kenneth F. Kelton

Arthur Holly Compton Professor of Physics  
PhD, Harvard University  
Condensed Matter & Materials Physics

### James G. Miller

Albert Gordon Hill Professor of Physics  
PhD, Washington University  
Physics Applications in Biology & Medicine

### Stuart A. Solin

Charles M. Hohenberg Professor of Experimental Physics  
PhD, Purdue University  
Condensed Matter & Materials Physics

## Professors

### Claude W. Bernard

PhD, Harvard University  
Elementary Particles

### Thomas Bernatowicz

PhD, Washington University  
Astrophysics and Space Sciences

### James H. Buckley

PhD, University of Chicago  
Astrophysics & Space Sciences

### Anders E. Carlsson

PhD, Harvard University  
Biophysics

### Mark S. Conradi

PhD, Washington University  
Condensed Matter & Materials Physics

**Willem H. Dickhoff**

PhD, Free University, Amsterdam  
Many-Body Theory

**Martin H. Israel**

PhD, California Institute of Technology  
Astrophysics & Space Sciences

**Jonathan I. Katz**

PhD, Cornell University  
Astrophysics

**Henric Krawczynski**

PhD, University of Hamburg  
Astrophysics & Space Sciences

**Michael C. Ogilvie**

PhD, Brown University  
Elementary Particles

**James S. Schilling**

PhD, University of Wisconsin-Madison  
Condensed Matter & Materials Physics

## Associate Professors

**Francesc Ferrer**

PhD, Universitat Autònoma de Barcelona  
Astrophysics & Space Sciences

**Zohar Nussinov**

PhD, University of California, Los Angeles  
Elementary Particles

**Alexander Seidel**

PhD, Massachusetts Institute of Technology  
Condensed Matter & Material Physics

**Ralf Wessel**

PhD, University of Cambridge  
Physics Applications in Biology & Medicine

**Li Yang**

PhD, Georgia Institute of Technology  
Condensed Matter & Materials Science

## Assistant Professors

**Erik Henriksen**

PhD, Columbia University  
Condensed Matter & Materials Science

**Kater Murch**

PhD, University of California, Berkeley  
Condensed Matter & Materials Science

**Ryan Ogliore**

PhD, California Institute of Technology

## Lecturers

**Vikram Duvvuri**

PhD, University of Chicago

**Mairin Hynes**

PhD, Washington University

## Professors Emeriti

**Peter A. Fedders**

PhD, Harvard University

**Michael W. Friedlander**

PhD, University of Bristol  
Astrophysics

**Patrick C. Gibbons**

PhD, Harvard University

**Charles M. Hohenberg**

PhD, University of California, Berkeley

**Kazimierz Luszczyński**

PhD, University of London

**Peter R. Phillips**

PhD, Stanford University

**John H. Scandrett**

PhD, University of Wisconsin-Madison

**Wai-Mo Suen**

PhD, California Institute of Technology

**Clifford Will**

PhD, California Institute of Technology

## Degree Requirements

This document summarizes the physics department's degree requirements. These are in addition to the requirements imposed by the Graduate School of Arts & Sciences. Visit [http://graduateschool.wustl.edu/current\\_students/degree-requirements](http://graduateschool.wustl.edu/current_students/degree-requirements) for more information.

Students are normally accepted for graduate work toward the PhD. Students are occasionally accepted to work toward the AM, but master's students do not receive financial support from the department nor, typically, from the Graduate School.

## Requirements for AM

1. 36 semester hours of course credits, of which at least 30 semester hours must be in classroom or seminar courses at the 400 level or higher. Classroom and seminar courses include reading courses, for which students should register for 589/590 Selected Topics in Physics; and supervised research, for which students should register for 593/594 Introduction to Methods in Physics. The latter can be used for a maximum of 6 units of credit.
2. The student must get permission from his or her adviser and the Director of Graduate Studies to take courses outside the physics department.
3. The student must maintain an overall grade average of B (GPA 3.0) or better.

4. Among the student's course work there must be at least 12 semester-hours of the "core" courses required for PhD qualification (see below), passed with an average grade of B (GPA 3.0) or better. A given core course may be taken only once. In the event that more than four different core courses (more than 12 semester-hours) are taken, the average grade will be determined from the best four core-course grades.

## Requirements for PhD

### 1. Outline of requirements

- Complete 72 units of course work, maintaining an average grade of B (GPA 3.0), including at least 36 units of academic credit (see below). Once the academic credit is completed, the remaining units (up to a total of 72) can include more lecture courses, but are typically research for which students should register for Physics 595/596.
- Pass the PhD qualification procedure. This must be done before a student can formally join a research group, and is normally completed before the start of the third year.
- Teaching requirements. Write a thesis ("doctoral dissertation").
- Pass an oral dissertation defense examination.

### 2. 36 unit academic credit course requirement. Courses that count toward academic credit:

- any regular 400- or 500-level lecture courses in the physics department, including Physics 597/598 Teaching Methods and Physics 582 Research Seminar
- courses outside the physics department, if approved by the student's adviser and the Director of Graduate Studies
- reading courses, for which students should register for Physics 589/590 Selected Topics in Physics
- supervised research, for which students should register for Physics 593/594 Introduction to Methods in Physics. This can be used for a maximum of 6 units of academic credit.

### 3. PhD qualification: course requirements

For qualification, students must pass six core 500-level physics courses. In those courses the student must maintain an average of a B (GPA 3.0), with no more than one grade lower than B-. A given core course may be taken only once. In the event that more than six different core courses are taken, the average grade will be determined from the grades in the four required core courses and the best two other core courses.

#### Must take:

Physics 501	Theoretical Methods I
Physics 505	Electricity and Magnetism I

Physics 523	Quantum Mechanics I
Physics 529	Statistical Mechanics I

#### plus at least two of:

Physics 502	Theoretical Methods II
Physics 506 or Physics 509	Electricity and Magnetism II Nonlinear Dynamics
Physics 524	Quantum Mechanics II

These requirements can be modified or waived for students with previous graduate work, e.g., a master's degree in physics.

### 4. PhD qualification: oral examination requirement

To qualify, the student must give a presentation to a committee of three physics faculty members (the prospective research adviser and two others). The student should demonstrate a basic understanding of a major topic of current research in the selected area of study.

The committee must be chosen and approved by the department chair by the end of a student's *third semester* (typically in December of the second year). The oral examination should be taken by the end of a student's *fourth semester* (typically in May of the second year). If a student fails it, then they can take it again one more time.

### 5. Teaching requirements

These requirements must be completed before the student submits her or his doctoral dissertation to the Graduate School.

#### a. Take Physics 597

Graduate students are required to take Physics 597 (Teaching Methods in Physics) prior to serving as a teaching assistant. Students typically take Physics 597 in their first fall semester.

#### b. TA for two semesters

Each graduate student is required to serve as a teaching assistant for at least two semesters. The department chair may require a student to serve as a TA for an additional one or two semesters, if this is necessary to meet departmental teaching needs. Graduate students are required to carry out their teaching duties conscientiously and to complete all grading tasks accurately and promptly. Failure to perform adequately as a teaching assistant may result in withdrawal of financial support and/or dismissal from the program.

#### c. Four hours of oral presentations

Graduate students must give a total of 4 hours of "specialized oral presentation." For example, teaching a class (e.g., when substituting for a professor); giving seminars, such as the weekly graduate seminar; or giving oral presentations at conferences,

journal clubs, etc. Certain outreach activities sponsored by the department may also count toward this requirement.

Each student must submit to the Graduate Studies Committee a form (available from the Graduate Secretary) detailing how the teaching requirement was completed. Students with substantial teaching experience who have received a master's degree prior to entering the program may petition the graduate studies committee to be excused from one or both of the first two requirements.

## 6. Dissertation requirements

See the Graduate School's Doctoral Dissertation Guide on their Policies and Guides page. (<http://graduateschool.wustl.edu/policies-and-guides>)

## 7. Oral defense of the dissertation

See the Graduate School's Doctoral Dissertation Guide.

*Note:* The rules for the oral defense committee changed on January 1, 2014. In brief, committees that meet after that date are only required to have a total of five members, at least three of whom must be from the student's department, and at least one of whom must be from outside the department. This is a reduction from the pre-2014 requirements, which call for six committee members, with at least two from outside the department. A student may use the new rules, but it is not necessary to change a committee already set up under the old rules.

## Political Science

The doctoral program in political science at Washington University is one of the top programs in the country. Graduate students take classes and engage in research with a faculty recognized nationally and internationally as among the most expert, active, and productive in the country.

Our graduate program is relatively small. We admit around eight students into the PhD program each year, and most of these complete the doctorate, generally in four to five years. There are approximately 40 graduate students currently in residence.

Washington University's PhD program in political science is designed to prepare students for academic careers in research and teaching at major institutions across the country. While our program stresses the importance of political methodology (applied statistics) and formal theory (game theory and mathematical modeling), our program is designed to train all students in these methods, regardless of their mathematical background. We provide professional training in the discipline through our professional development seminar and we encourage our students to attend professional meetings and participate in convention programs.

We have active research groups in American politics and institutions, comparative politics, international political economy, positive and normative theory, and political methodology. A

number of students also work in the field of political economy, collaborating with faculty in political science, economics, law, and business.

It is important to emphasize that we do not regard these subfields as separate entities. Many of our faculty have research and teaching interests that transcend political science subfields, as well as traditional disciplinary boundaries. We have strong connections with other departments at Washington University, including economics, anthropology, the law school, and with various interdisciplinary research centers on campus.

## Financial Support

Our incoming classes are fully funded, covering tuition and living expenses. We try to provide financial support for our students during most if not all of their time at Washington University. This support comes from several sources — fellowships awarded by the university, teaching and research assistantships in the political science department, summer teaching, and research fellowships from outside sources such as the National Science Foundation, the Fulbright Commission, and so on. More information about funding and other matters of interest to prospective students can be found on the frequently asked questions (FAQs) page of our website: <http://polisci.wustl.edu/graduate/faq>.

## Professional Training and Job Placement

The graduate program prepares students primarily for academic careers in research and teaching. The curriculum is designed to help students master the best work being done in political science, and to become producers of original research themselves. Political science today makes extensive use of quantitative techniques, and our curriculum aims to provide all students with command of these approaches, to be both literate and numerate, and to be able to employ them in their own research when appropriate. The frequently asked questions (FAQs) section of our website (<http://polisci.wustl.edu/graduate/faq>) provides more details on our curriculum.

We pride ourselves on our job placement on the academic job market. Our graduates go on to have successful careers in tenure track jobs. Our placement record is among the top in the discipline. In the last few years we placed a majority of our PhDs into tenure track jobs at research universities such as Penn State University, University of Illinois Urbana-Champaign, Florida State University, University of Kentucky and others.

<b>Contact Person:</b>	Colleen Daues
<b>Phone:</b>	(314) 935-7455
<b>E-mail:</b>	<a href="mailto:cdaues@wustl.edu">cdaues@wustl.edu</a>
<b>Departmental website:</b>	<a href="http://polisci.wustl.edu/graduate">http://polisci.wustl.edu/graduate</a>

## Chair

### James Spriggs III

Sidney W. Souers Professor of Government  
PhD, Washington University  
American Politics; Empirical legal studies; Judicial process and politics; U.S. Supreme Court

## Endowed Professors

### Randall Calvert

Thomas F. Eagleton University Professor of Public Affairs and Political Science  
PhD, California Institute of Technology  
Formal political theory; American political institutions; Constitutional politics

### Lee Epstein

Ethan A.H. Shepley Distinguished University Professor  
PhD, Emory University  
American Political Institutions; Judicial Politics; Law and Politics

### James L. Gibson

Sidney W. Souers Professor of Government  
PhD, University of Iowa  
Judicial politics; Democratization; Political psychology; Political tolerance; Survey research; Quantitative research methods; South African politics; Law and society

### Norman Schofield

Dr. William Taussig Professor of Political Economy  
PhD, Essex University in Government  
Formal theory; comparative politics

### Steven S. Smith

Kate M. Gregg Distinguished Professor of Social Science  
PhD, University of Minnesota  
American politics; Congressional politics; Russian legislative politics; Development of political institutions

## Professors

### Brian Crisp

PhD, University of Michigan  
Comparative Politics; Electoral Systems; Legislative Politics; Interbranch Relations

### Matthew Gabel

PhD, University of Rochester  
Comparative Politics; Legislative; Judicial; Mass Behavior; European Politics; Health Policy

### Jeff Gill

PhD, American University  
Political methodology; Bayesian methods; Statistical computing; Markov chain; Monte Carlo; Voting; Bureaucracy Research methods; Scottish politics

### William Lowry

PhD, Stanford University  
American politics; Public policy; Natural resources

### Margit Tavits

PhD, University of Pittsburgh  
Comparative Politics; Parties and Elections; Political Institutions; Democracy; Corruption; European Politics; Post-Communist Politics

## Associate Professors

### Daniel Butler

PhD, Stanford University  
American Politics

### Justin Fox

PhD, University of Rochester  
Game Theory; American Political Institutions

### Clarissa Rile Hayward

PhD, Yale University  
Political Theory

### Frank Lovett

PhD, Columbia University  
Political Theory

### Ian MacMullen

PhD, Harvard University  
Contemporary Political Theory; Education, Religious & Cultural Pluralism; Individual Autonomy; Citizenship

### Sunita Parikh

PhD, University of Chicago  
Comparative politics; Race and ethnicity; Institutions; Comparative methods; Federalism; Collective violence

### Andrew Rehfeld

PhD, University of Chicago  
Political Representation; Democratic Theory; History of Political Thought; Political Theory; Philosophy of Social Science

### Guillermo Rosas

PhD, Duke University/Washington University  
Comparative politics; Political economy; Latin American politics

### Betsy Sinclair

PhD, California Institute of Technology  
American politics; Political methodology; Individual political behavior

## Assistant Professors

### Dawn Brancati

PhD, Columbia University  
Democracy and Intrastate Conflict

### Jacob Montgomery

PhD, Duke University  
American politics; Statistical methods

**Andrew Reeves**

PhD, Harvard University  
American politics; Electoral politics; Political accountability

**Jon Rogowski**

PhD, University of Chicago  
American Politics

## Degree Requirements

### Requirements for the PhD Degree

Students in the PhD program are expected to acquire:

- a broad understanding of several fields of political science as a discipline,
- methodological competence sufficient to be productive professionals, and
- specialized expertise in a particular field of concentration.

The procedures and requirements described below are designed to facilitate achievement of those objectives. Students who fail to fulfill requirements will be considered in bad standing and will be dismissed from the program.

### General Course Requirements

In general, all students must successfully complete — with a grade of B or better — the following four core courses:

- Mathematical Modeling in Political Science (Pol Sci 5052): first semester
- Quantitative Methods I (Pol Sci 581): second semester
- Quantitative Methods II (Pol Sci 582): third semester
- Game Theory (Pol Sci 506)

Mathematical Modeling in Political Science (Pol Sci 5052) may be waived on recommendation of the methods and formal theory committees if a student already has a strong command of college calculus and its application to social science.

More information on degree requirements for each specific field and a program summary timeline can be found in our Guide to Graduate Study, which can be found at <http://polisci.wustl.edu/graduate>.

## Psychological & Brain Sciences

The Department of Psychological & Brain Sciences trains graduate students who are interested in becoming the next generation of academic researchers and educators in psychological and brain sciences. Graduate study 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 encourage interdisciplinary graduate study, both between the subfields of psychological and brain sciences and with other disciplines. Therefore, whereas students must affiliate with at least one of the areas within psychological

and brain sciences, they are frequently affiliated with multiple areas within psychological and brain sciences. Further, many graduate students in psychological and brain sciences also engage in interdisciplinary training and research. For example, opportunities for cross-disciplinary training and research are available in the Division of Biology and Biomedical Sciences (e.g., neuroscience and genetics), 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.

The Department of Psychological & Brain Sciences admits students for full-time study toward the PhD and does not offer a terminal master's degree. However, students are required to complete a master's degree with thesis as part of the requirements for a PhD. In addition, the PhD requires course work (including statistics, methods, ethics and several core content areas), a subject matter exam, at least one semester of a teaching experience that fulfills the doctoral teaching requirement, and consistently high-quality research productivity that results in publishable findings.

In making decisions about admission, the Department of Psychological & Brain Sciences considers many factors, including test scores, grade-point average, research experience, and letters of recommendation, as well as other factors that help us assess an individual's potential. There are no minimum undergraduate course requirements on which admission to graduate study in the department is based. However, the department recommends a liberal undergraduate education with a major in psychology before undertaking graduate study in psychological and brain sciences, though other major fields may be suitable as preparation in specific areas of psychological and brain sciences.

In addition to completing the Graduate School's online application, qualified applicants are asked to visit for an interview. We have found such interviews to be highly useful both for the applicant and for the faculty in the department. However, an in-person interview is not mandatory for admission.

**Phone:** (314) 935-6520

**Departmental website:** <http://psychweb.wustl.edu/graduate>

### Chair

**Deanna M. Barch**

Gregory B. Couch Professor of Psychiatry  
PhD, University of Illinois at Urbana-Champaign

### Associate Chair

**Jeffrey M. Zacks**

Professor  
PhD, Stanford University

## Endowed Professors

### John Baugh

Margaret Bush Wilson Professor in Arts & Sciences  
PhD, University of Pennsylvania  
(African and African-American Studies, Anthropology, Education, English)

### Randy J. Larsen

William R. Stuckenberg Professor of Human Values and Moral Development  
PhD, University of Illinois

### Thomas F. Oltmanns

Edgar James Swift Professor of Arts & Sciences  
PhD, State University of New York–Stony Brook

### Steven E. Petersen

James S. McDonnell Professor of Cognitive Neuroscience  
PhD, California Institute of Technology  
(Neurology and Neurological Surgery)

### Henry L. Roediger III

James S. McDonnell Distinguished University Professor  
PhD, Yale University

### Rebecca A. Treiman

Burke and Elizabeth High Baker Professor of Child Developmental Psychology  
PhD, University of Pennsylvania

## Professors

### Richard A. Abrams

PhD, University of Michigan

### David A. Balota

PhD, University of South Carolina

### Todd Braver

PhD, Carnegie Mellon University

### Ian G. Dobbins

PhD, University of California, Davis

### Leonard Green

PhD, State University of New York–Stony Brook

### Sandra S. Hale

PhD, University of Wisconsin–Milwaukee

### Larry L. Jacoby (part-time)

PhD, Southern Illinois University–Carbondale

### Mark A. McDaniel

PhD, University of Colorado

### Kathleen B. McDermott

PhD, Rice University

### Michael Merbaum (part-time)

PhD, University of North Carolina at Chapel Hill

### Mitchell Sommers

PhD, University of Michigan

### Michael J. Strube

PhD, University of Utah

### Desirée A. White

PhD, Washington University

### Denise E. Wilfley

PhD, University of Missouri

## Associate Professors

### Brian D. Carpenter

PhD, Case Western Reserve University

### Janet M. Duchek

PhD, University of South Carolina

### Denise P. Head

PhD, University of Memphis

### Alan J. Lambert

PhD, University of Illinois at Urbana-Champaign

### Lori Markson

PhD, University of Arizona

### Thomas L. Rodebaugh

PhD, University of North Carolina at Chapel Hill

## Assistant Professors

### Ryan Bogdan

PhD, Harvard University

### Julie M. Bugg

PhD, Colorado State University

### Tammy English

PhD, University of California, Berkeley

### Joshua Jackson

PhD, University of Illinois at Urbana-Champaign

### Renee J. Thompson

PhD, University of Illinois at Urbana-Champaign

### Heike Winterheld

PhD, University of Minnesota

## Adjunct Professors

### Robert Carney

PhD, Washington University  
(Psychiatry)

### Kenneth Freedland

PhD, University of Hawaii  
(Psychiatry)

### Barry Hong

PhD, Saint Louis University  
(Psychiatry)

**Patrick Lustman**  
PhD, Michigan State University  
(Psychiatry)

**Marcus E. Raichle**  
MD, University of Washington  
(Radiology)

**Eugene Rubin**  
MD, PhD, Washington University School of Medicine  
(Psychiatry)

**James V. Wertsch**  
Marshall S. Snow Professor in Arts & Sciences  
PhD, University of Chicago  
(Anthropology, International and Area Studies, Education)

## Adjunct Associate Professors

**Arpana Agrawal**  
PhD, Virginia Commonwealth University  
(Psychiatry)

**C. Robert Almi**  
PhD, Michigan State University  
(Occupational Therapy)

**John Newcomer**  
MD, Wayne State University  
(Psychiatry)

**John Rohrbaugh**  
PhD, University of Illinois  
(Psychiatry)

## Research Professor

**Joel Myerson**  
PhD, Arizona State University

## Lecturers

**Amy D. Bertelson**  
PhD, Ohio State University

**Tim Bono**  
PhD, Washington University

**Sara J. Estle**  
PhD, Washington University

**Heather Rice**  
PhD, Duke University

**Robinson Welch**  
PhD, University of Missouri–Columbia

## Professors Emeriti

**Stanley Finger**  
PhD, Indiana University Bloomington

**Anthony Schuham**  
PhD, Washington University

**Martha Storandt**  
PhD, Washington University

**Robert L. Williams**  
PhD, Washington University

## Degree Requirements

### General Requirements for the PhD in Psychology

The following is a [brief](#) listing of the requirements for the PhD in Psychology. A more detailed description of these requirements may be found on the department website (<http://psychweb.wustl.edu/graduate>) in our [Graduate Training Manual](#). All students must:

- Complete 72 credit hours of graduate-level course work (this course work must be completed for a student to be considered ABD). A typical semester course load for the first two years is 12-13 credit hours, unless teaching or research responsibilities suggest a 9-10 credit hour load.
- Obtain teaching experience commensurate with preparation for an academic career. There is a [Teaching Requirement](#) that all students must meet, the details of which are outlined in our Graduate Training Manual.
- Attend a 1-credit (one hour per week) seminar on Research Ethics. This typically happens during the fall semester of a student's first or second year in the program.
- Attend at least five (5) workshops on professional development over the entire course of the program.
- Complete a qualifying research project during the first two years of graduate study. This is often referred to as the master's thesis.
- Pass a *subject matter examination*. This examination must be passed before work on the dissertation can begin.
- Complete a *dissertation project* and defend it in an *oral examination*. The research requirements for the PhD are described in more detail in our Graduate Training Manual.

## Public Health Sciences

The Brown School's PhD program in Public Health Sciences prepares students to think critically as public health scientists, succeed as independent investigators, and understand and address public health challenges for the nation and the world. It provides hands-on research experiences and mentoring from day one in the program; a curriculum that builds methodological and analytical skills, and deep knowledge of the field's theoretical and conceptual underpinnings, philosophy and history; and professional acculturation and network building.

Our doctoral program involves intense training in population and social science research methods and personalized mentoring by some of the leading scholars in the field. Our faculty are on the forefront of research in health disparities, chronic disease

prevention, epidemiology and biostatistics, global health, health policy, systems science, urban design and the built environment, violence and injury prevention, and mental health. Our curriculum prepares students for leadership in research in a rapidly changing society. We provide a diversity of experience and faculty with a cross-section of interests that enhance transdisciplinary learning. We have created a collaborative and entrepreneurial community with a strong commitment to conducting research that will have social impact.

**Contact Person:** Kim Freels  
**Phone:** (314) 935-3599  
**E-mail:** kfreels@wustl.edu  
**Departmental website:** [http://brownschool.wustl.edu/Admissions/PhDinPublicHealthSciences/Pages/PHD\\_Public%20Health\\_Landing.aspx](http://brownschool.wustl.edu/Admissions/PhDinPublicHealthSciences/Pages/PHD_Public%20Health_Landing.aspx)

## Dean

### Edward F. Lawlor

William E. Gordon Distinguished Professor  
PhD, Brandeis University  
Access to health care; Health care reform; Policy analysis; Aging

## Associate Dean for the Doctoral Program

### Renee M. Cunningham-Williams

Associate Professor; Director, NIDA T32 (TranSTAR) Pre- and Postdoctoral Training Program; Director, PhD Program in Social Work  
PhD, Washington University  
Epidemiological, prevention, and intervention research; Health and mental health disparities; Pathological gambling and comorbidity; Risk taking, substance use and antisocial behaviors; Crisis intervention

## Director, PhD Program in Public Health Sciences

### Douglas A. Luke

Professor  
PhD, University of Illinois  
Systems Science, Evaluation of Public Health Programs, Tobacco Control Policy

## Endowed Professors

### Ross Brownson

Bernard Becker Professor  
PhD, Colorado State University  
Evidence-based Public Health, Dissemination & Implementation Research, Chronic Disease Prevention

### Debra Haire-Joshu

Joyce Wood Professor  
PhD, Saint Louis University  
Obesity Prevention, Diabetes Prevention, Health Policy

### Matthew Kreuter

Kahn Family Professor of Public Health  
PhD, University of North Carolina at Chapel Hill  
Health Communication, Health Disparities

## Professors

### Timothy McBride

PhD, University of Wisconsin-Madison  
Health Policy, Health Economics, Rural Health Care

### Vetta Sanders Thompson

PhD, Duke University  
Health & Mental Health Disparities, Cultural Competency, Race, Identity & Health

## Associate Professor

### Jenine Harris

PhD, Saint Louis University  
Social Network Analysis, Social Media in Public Health

## Assistant Professors

### Derek Brown

PhD, Duke University  
Health Economics, Health Policy

### Alexis Duncan

PhD, Saint Louis University  
Psychiatric & Genetic Epidemiology, Obesity and Eating Disorders

### Amy Eyler

PhD, Oregon State University  
Physical Activity, Childhood Obesity, Prevention Policy

### J. Aaron Hipp

PhD, University of California, Irvine  
Build Environment, Geographic Information Systems (GIS)

### Darrell Hudson

PhD, University of Michigan  
Social Determinants of Health, Health Disparities

### Lora Iannotti

PhD, Johns Hopkins University  
Child Nutrition, Infectious Diseases and Poverty Pathways

### Kimberly Johnson

PhD, University of Minnesota  
Human Genetics & Cancer, Epidemiology

### Jason Purnell

PhD, Ohio State  
Health Disparities, Economic Determinants of Health

**Zorimar Rivera-Núñez**

PhD, University of Michigan  
Environmental Health, Environmental Epidemiology

**Jean-Francois Trani**

PhD, Institut d'Etudes Politiques de Paris, France  
Global Health, Human Rights, Disabilities

## Degree Requirements

### PhD in Public Health Sciences

- 72 credit hours; 21 credits transferrable from a relevant master's program
- Two years of full-time course work
- Complete and defend a dissertation
- Three teaching practicums for course credit
- Three research practicums for course credit

## Rehabilitation and Participation Science

Advances in our understanding of the mechanisms underlying activities of daily living and the development of new technologies have created a need for scientific evidence that can guide efforts at increasing participation and improving quality of life for persons with disabilities throughout the lifespan. The RAPS program provides advanced interdisciplinary training necessary for students aspiring to lead the next generation of scientific advances in neurorehabilitation and environmental strategies. Students will gain a solid broad foundation in neurorehabilitation and participation sciences and develop a research specialization through mentored training in one or more of the following laboratories:

- Rehabilitation Neuroscience (Dr. Scott Frey, RAPS Chair)
- Infants and Children at Risk (NICU) (Dr. Roberta Pineda)
- Child Health and Education (Dr. Allison King)
- Health and Disability Research (Dr. Alex Wong)
- Participation, Environment and Performance (Dr. Susan Stark)
- Other Washington University Laboratories if a qualified faculty mentor agrees to support the RAPS program mission and requirements (Approval of RAPS Chair)

Graduates of the RAPS program will be prepared for a career as an independent scientist and academician at a research university, research institute, or an industry setting.

**Contact Person:** RAPS Academic Coordinator  
**Phone:** (314) 286-1619  
**Departmental website:** <http://ot.wustl.edu/education/phd-in-rehabilitation-and-participation-science-142>

## Chair

**Scott Frey**

Associate Director, Program in Occupational Therapy; Professor of Occupational Therapy and Neurology  
PhD, Cornell University

## Professor

**Carolyn Baum**

Elias Michael Director and Professor of Occupational Therapy, Neurology, and Social Work  
PhD, Washington University  
OTR/L, University of Kansas

## Assistant Professors

**Nico Dosenbach**

Assistant Professor of Neurology and Occupational Therapy  
MD, PhD, Washington University

**Allison King**

Assistant Professor of Occupational Therapy and Pediatrics  
MD, University of Missouri

**Bobbi Pineda**

Assistant Professor of Occupational Therapy and Pediatrics  
PhD, University of Florida  
OTR/L, University of Florida

**Susan Stark**

Assistant Professor of Occupational Therapy, Neurology, and Social Work  
PhD, University of Missouri  
OTR/L, Washington University School of Medicine

**Alex Wong**

Assistant Professor of Occupational Therapy and Neurology  
PhD, Hong Kong Polytechnic University  
DPhil, University of Illinois at Urbana-Champaign

## Degree Requirements

### PhD Application Process and Requirements

Preferably, applicants will have a clinical degree in a medical or rehabilitation field or a graduate degree in public health, engineering, neuroscience, psychology or other biological or social science field. Exceptional applicants with a baccalaureate degree from an accredited college or university, relevant course work and demonstrated research experience will be considered.

Prerequisites will vary somewhat depending on the student's desired area of specialization. All applicants should have completed undergraduate-level courses in: Statistics, Research Methods, Human Physiology, and advanced courses in Social Sciences and Psychology. Students interested in the rehabilitation neuroscience foci must have a course in neuroscience/biological psychology, and the community

track foci must have an epidemiology course. If one or two prerequisites are missing prior to admission they can be taken concurrently with required RAPS courses, but will not count for required credits. Prior research experience is strongly encouraged.

## Curriculum

Students must complete 30 units of core courses, 12-15 units of electives, 18-21 research units in the lab of the mentor and 6-9 hours of dissertation.

### Required Core Courses (30 units)

- Theories, Models and Classifications of Rehabilitation and Participation Science (3)
- Nervous System Function and Performance (3)
- Environmental Factors and Participation (3)
- Measurement Theory and Rehabilitation Measurement (3)
- Research Design and Methods (3)
- Research Ethics (3)
- Intermediate Statistics (3)
- Advanced Statistics (3)
- Teaching Strategies and Practicum (3)
- Skills for the Developing Scientist (3)

Prior graduate courses that explicitly meet the course requirements may be considered (syllabus must be submitted for review and approval of the RAPS Chair). In no case will the core or elective courses accepted for the degree requirement exceed 21 credits.

All PhD students will join PhD faculty in a bi-weekly seminar where faculty and student research is presented and discussed. Presentations will also be made by Washington University faculty and visiting professors who will be invited to spend time with students and faculty.

### Elective Units (12-15 units)

Electives are formal courses that support the student in building a cognate to achieve the knowledge needed to become independent scientists in an area of study. The elective courses will be chosen with the mentor and approved by the Chair of the RAPS program. The courses may be in neuroscience, biological science, social science, engineering, technology, occupational therapy, social work, and public or community health. Prior graduate-level credits will be considered if they explicitly relate to the student's cognate (syllabus must be submitted for review and approval by the RAPS Chair).

### Research Units (18-21 units)

Active involvement in research begins during the first semester and constitutes the backbone of RAPS PhD training. The student will work with the mentor in his or her laboratory to learn the basic processes of the laboratory and the research skills that will be central to the student's area of study. The student will

work with the mentor's guidance to conduct studies that should lead to peer-reviewed publications and may contribute to the dissertation research. The student will spend some of the research units in the first year in another faculty's laboratory to conduct a project or do a lab rotation to gain understanding of participation and the multiple aspects of rehabilitation science.

Beginning the first semester the student will spend a minimum of 16 hours a week in the mentor's laboratory; this time will increase as course work is completed. The student will be enrolled in 3 hours of research credit per semester followed by dissertation credit after the student successfully completes his or her comprehensive exams.

It is possible that the student may find that his or her interests lie in an area different from that originally selected. In this case, the student may switch laboratories and mentors with the approval of the RAPS Program Chair and necessary adjustments in course and laboratory experiences.

### Dissertation (6-9 units)

## Course Descriptions

**RAPS: Theories, Models and Classifications of Rehabilitation and Participation Science** — The course will explore the historical and theoretical foundations of Rehabilitation and Participation Science and the evolution of models and classification systems. Students will find and use specific theories to ground their understanding of the area of their specialization.

**RAPS: Measurement Theory and Application** — Students will be introduced to the principles of measurement and the statistics that support the development of assessments that will be central to their area of study. These will include psychological, physiological, sensory, motor, cognitive as well as subjective and objective assessments to measure patient-related outcomes, and the environmental and quality of life issues that are central to participation. Students will work with data from the mentor's lab to learn the statistical skills necessary for measurement development.

**RAPS: Nervous System Function and Performance** — The course will provide an in-depth understanding of the human nervous system and basic research pertaining to factors that influence performance. The course focuses on psychological, physiological, sensory, perceptual, motor, cognitive mechanisms and processes to lay the foundational principles of performance and to learn how the capacity to perform relates to participation.

**RAPS: Environment Factors and Participation** — The course will provide an in-depth understanding of person-environment interactions that support community participation. The course focuses on the physical, cognitive, sociocultural and policy aspects of the environment that impact participation of persons with, or at risk for, chronic illness or disability.

**Research Design and Methods** — This course provides the basis of research design and the methodologies that frame questions, design analysis and report findings. Content includes experimental, qualitative, quantitative, single case, and the phases of clinical trials design.

**Research Ethics and Regulatory Affairs** — This course will provide an understanding of the ethical guidelines, issues, and challenges of conducting research on human subjects. Issues such as conflict of interest, genetic testing, limits of confidentiality, risk, and the distinction between compliance and ethics will be explored. As we learn about protecting research groups and interests and explaining rights and liabilities, we will study health care legislation and regulations, guidelines, contractual matters, and the complex regulatory framework that governs human subject research. Finally, we will learn to use an ethical problem-solving model in clinical research.

**Intermediate Statistics** — This course includes basic descriptive and inferential statistics through multiple linear and logistic regressions. Students will analyze data from the mentor's laboratory as part of the learning experience.

**Advanced Statistics (determined by focus)** — Depending on the methods chosen by the student and approved by her or his committee, the student will take an advanced statistics class that will guide the analysis. The course work could include such areas as neural networks, Structural Equation Models (SEM).

**Teaching Strategies and Practicum** — This course prepares students with tools for the academic teaching environment, including philosophical approaches to education, applying learning theories, goal-writing, assessment strategies, curriculum and instructional design, and identifying research that supports effectiveness of educational approaches. Students evaluate perspectives on teaching, prepare lessons and syllabi, and construct personal philosophies of teaching and learning. It also includes a supervised classroom teaching experience in a content area relevant to the student's area of interest.

**Skills for the Developing Scientist** — This course will introduce the skills of building a career development plan, constructing a curriculum vitae, advance skills in managing references, constructing posters and making presentations, learning the grant mechanisms from NIH, ACL-NIDRR, CDC and other federal agencies and major foundations that provide support to areas of the student's interests.

## Romance Languages and Literatures

The Department of Romance Languages and Literatures offers PhD programs in French and in Hispanic Languages and Literatures, preparing students for careers in university teaching and research. With our faculty's wide-ranging expertise, graduate students have opportunities to specialize and train in many areas of French, Francophone, Latin American,

and Iberian cultures. We offer a broad range of training from medieval through contemporary, with opportunities to concentrate in a variety of different areas that reflect the areas of expertise of our faculty, including migrations and communities; popular literacy and cultural memory; early modern and modern cultural production; the intersections of literature, art, and the sciences; modernities and postmodernities; visual cultures and performance; and linguistics and language learning. The department also offers the Graduate Certificate in Language Instruction, which is open to PhD students in other disciplines as well as to those in the department's own graduate programs.

In both programs, students receive six years of funding (five if admitted with a master's degree). Two years of this funding generally come in the form of first-year and dissertation fellowships, entailing no teaching; the rest comes as teaching assistantships.

### Contact Information

For information on the combined degrees, PhD in French & Comparative Literature and PhD in Spanish & Comparative Literature, consult the Comparative Literature program.

**PhD program in French Language and Literature website:**  
<http://rll.wustl.edu/french/grad>

**PhD program in Hispanic Languages and Literatures website:** <http://rll.wustl.edu/spanish/grad>

**Phone:** (314) 935-5175  
**E-mail:** [rll@wustl.edu](mailto:rll@wustl.edu)

### Chair

**Michael Sherberg**  
Professor of Italian  
PhD, University of California, Los Angeles

### Endowed Professors

**Mabel Moraña**  
William H. Gass Professor in Arts & Sciences; Director of Latin American Studies Program  
PhD, University of Minnesota

**Elzbieta Sklodowska**  
Randolph Professor in Arts and Sciences  
PhD, Washington University

### Professors

**Joe Barcroft**  
Professor of Spanish and Applied Linguistics  
PhD, University of Illinois at Urbana-Champaign

**Pascal Ifri**  
Professor of French  
PhD, Brown University

**Rebecca Messbarger**

Professor of Italian  
PhD, University of Chicago

**Stamos Metzidakis**

Professor of French and Comparative Literature  
Ph.D., Columbia University

**Joseph Schraibman**

Professor of Romance Languages and Literatures  
PhD, University of Illinois at Urbana-Champaign

**Harriet A. Stone**

Professor of French and Comparative Literature  
PhD, Brown University

**Akiko Tsuchiya**

Professor of Spanish  
PhD, Cornell University

**Colette H. Winn**

Professor of French  
PhD, University of Missouri–Columbia

## Associate Professors

**William Acree**

Associate Professor of Spanish  
PhD, University of North Carolina at Chapel Hill

**J. Andrew Brown**

Associate Professor of Spanish  
PhD, University of Virginia

**Tilli Boon Cuillé**

Associate Professor of French  
PhD, University of Pennsylvania

**Nina Cox Davis**

Associate Professor of Spanish  
PhD, Johns Hopkins University

**Seth Graebner**

Associate Professor of French  
PhD, Harvard University

**Stephanie Kirk**

Associate Professor of Spanish  
PhD, New York University

**Tabea Linhard**

Associate Professor  
PhD, Duke University

**Eloísa Palafox**

Associate Professor of Spanish  
PhD, Michigan State University

**Ignacio Sánchez-Prado**

Associate of Spanish  
PhD, University of Pittsburgh

**Julie Singer**

Associate Professor of French  
PhD, Duke University

## Assistant Professors

**Javier Garcia-Liendo**

Assistant Professor of Spanish  
PhD, Princeton University

**Ignacio Infante**

Assistant Professor of Comparative Literature and Spanish  
PhD, Rutgers University

## Professor Emerita

**Elyane Dezon-Jones**

Professor of French  
Doctorat de 3e Cycle, University of Paris

## Professor Emeritus

**Michel Rybalka**

Professor of French  
PhD, University of California, Los Angeles

## Degree Requirements

Students in both programs take a required seminar in language teaching methodology, in addition to the requirements specified below. Optional pedagogical or interdisciplinary training can be acquired by means of one of the Graduate School's certificate programs.

## PhD in French Language and Literature

For the PhD in French Language and Literature, students take courses in all areas of French and Francophone studies, and may take up to two courses outside French, for a total of 60 credits at the graduate level. In their fourth semester, students take the AM exam. In the semester after they finish their course work, students take their PhD exams, consisting of three written examinations and one oral examination by the full faculty, followed by a dissertation prospectus defense before their thesis committee of three faculty members. Students then have approximately two years to complete research and writing of their dissertations, which they defend in the last semester of their programs.

## PhD in Hispanic Languages and Literatures

For the PhD in Hispanic Languages and Literatures, students take courses in all areas of Latin American and Iberian studies and may take up to two courses outside Spanish. In the third semester, students take a comprehensive exam that tests their knowledge of some 60 texts from all periods of Spanish and Latin American Literature. Having passed their comprehensive

exams, students proceed to a qualifying exam in their sixth semester based on lists that students develop with their faculty advisers. In their eighth semester, students submit an extended prospectus and a draft of a chapter. The student will then defend the prospectus and the chapter to a committee of four faculty members in a one-hour oral exam. Students then research, write, defend, and submit their doctoral dissertation in the course of the next two years.

## 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, the Department of Romance Languages and Literatures offers the Graduate Certificate in Language Instruction for students enrolled in PhD programs at Washington University.

The Graduate Certificate in Language Instruction is an interdisciplinary certificate related to the fields of applied linguistics, second language acquisition, psychology, neuroscience, and other disciplines that have important implications for the way we teach foreign languages. Study within these different fields provides a fascinating examination of how second languages are learned and how second language is generated by learners. An understanding of second language acquisition processes both enriches our knowledge of how the mind works and serves to better inform the ways that foreign language teachers design and implement curricular approaches for different levels and skills.

PhD students must apply to be considered for the certificate program at the beginning of their doctoral course work; AM students are not eligible for consideration. Applications will be evaluated by a faculty committee twice a year, in October and March. The certificate consists of five courses: three required courses and two electives. Since the certificate requires three additional courses beyond those required for the PhD, students will complete 81 semester hours rather than 72. Additional tuition remission is available.

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 (phonology, lexis, syntax, pragmatics) and different linguistic modalities (spoken and written). This formation will also prepare students to be involved in language program design and curricular development.

**Website:** <http://rll.wustl.edu/cert/langinstruction>

**Email:** [barcroft@wustl.edu](mailto:barcroft@wustl.edu)

**Phone:** (314) 935-7951

## Social Work

The objective of the PhD in Social Work is to educate scholars for research careers in the social and behavioral sciences. The

program is highly interdisciplinary, mentoring students with interests in such areas as social and economic development, child welfare, gerontology, addictions, health, mental health, and public health. Our graduates pursue teaching and research careers in social science institutions throughout the world.

The program requires 72 units of credit, 21 of which may come from a student's master's degree. While in the program, the student will take a variety of theory and research methods courses, plus 15 units of elective credits outside the traditional social work curriculum. Electives may include classes in psychology, psychiatry, public health, anthropology, education, law, economics, or political science. Teaching and research assistantships and the writing of an "area statement" round out the required credits. Competence is assessed through a qualifying examination and the defense of the dissertation. We are unable to offer distance learning or part-time study.

A completed master's degree in social work, public health, or related social science is required of all applicants for admission; a minimum of two years of post-master's practice and/or research experience is strongly recommended. The deadline for applications to the PhD in Social Work is December 1 of the year preceding enrollment.

<b>Contact Person:</b>	Doctoral Program Office
<b>Phone:</b>	(314) 935-6605
<b>E-mail:</b>	<a href="mailto:phdsw@wustl.edu">phdsw@wustl.edu</a>
<b>Departmental website:</b>	<a href="http://brownschool.wustl.edu/Admissions/PHDProgram/Pages/PhD-in-Social-Work-Overview.aspx">http://brownschool.wustl.edu/Admissions/PHDProgram/Pages/PhD-in-Social-Work-Overview.aspx</a>

## Dean

**Edward F. Lawlor**

William E. Gordon Distinguished Professor  
PhD, Brandeis University

Access to health care; Health care reform; Policy analysis; Aging

## Associate Dean for the Doctoral Program

**Renee M. Cunningham-Williams**

Associate Professor; Director, NIDA T32 (TranSTAR) Pre- and Postdoctoral Training Program; Director, PhD Program in Social Work

PhD, Washington University

Epidemiological, prevention, and intervention research; Health and mental health disparities; Pathological gambling and comorbidity; Risk taking, substance use and antisocial behaviors; Crisis intervention

## Endowed Professors

### Wendy Auslander

Barbara A. Bailey Professor of Social Work  
PhD, Washington University  
Health behavior and health promotion; Childhood abuse and adolescent risk behaviors; Trauma treatment for adolescent girls; Family, psychosocial, and behavioral issues in diabetes; HIV prevention; Community participatory research; Cultural and ethnic factors related to health; Intervention research and evaluation

### Ross C. Brownson

Bernard Becker Professor; Director, Prevention Research Center  
PhD, Colorado State University  
Chronic disease prevention through environmental and policy change; Evidence-based public health; Policy effects on physical activity and obesity; Dissemination research

### Sarah Gehlert

E. Desmond Lee Professor of Racial and Ethnic Diversity  
PhD, Washington University  
Health disparities; Women's health and mental health; Adaptation to illness and traumatic injury; Community-based participatory research; transdisciplinary research and team science

### Shenyang Guo

Frank J. Bruno Distinguished Professor of Social Work  
Research; Assistant Vice Chancellor for International Affairs—China  
PhD, University of Michigan  
Quantitative Research methodology; Program and practice evaluations; Child welfare; Child mental health

### Debra Haire-Joshu

Joyce Wood Professor; Associate Dean for Research; Director, Center for Diabetes Translation Research; Director, Center for Obesity Prevention and Policy Research  
PhD, St. Louis University  
Health policy; Preventing obesity and diabetes in underserved populations; Transdisciplinary approaches to biomedical, behavioral, and public health research

### Sean Joe

Benjamin E. Youngdahl Professor of Social Development  
PhD, University of Illinois at Urbana-Champaign  
Role of religion in black suicidal behavior; Salivary biomarker discovery for adolescent suicidal behavior; Father-focused family-based interventions; Preventing self-destructive behaviors in African-American adolescent males; Racial Inequality in Adolescent Development

### Matthew W. Kreuter

Associate Dean for Public Health; Kahn Family Professor of Public Health  
PhD, MPH, University of North Carolina at Chapel Hill  
Health communication; Cancer prevention and control; Integrating health and social services; Health disparities

### Nancy Morrow-Howell

Bettie Bofinger Brown Distinguished Professor of Social Policy; Director, Harvey A. Friedman Center for Aging  
PhD, University of California, Berkeley  
Productive and civic engagement in late life; Social engagement in later life

### Enola K. Proctor

Shanti K. Khinduka Distinguished Professor; Director, Center for Mental Health Services Research  
PhD, Washington University  
Mental health services delivery; Post-acute health and mental health community care; Outcomes of clinical practice; Evaluation of clinical social work

### Mark Rank

Herbert S. Hadley Professor of Social Welfare  
PhD, University of Wisconsin  
Poverty and economic inequality; Social welfare; Family; Social policy; Demography; Life course

### Michael Sherraden

George Warren Brown Distinguished University Professor; Director, Center for Social Development  
PhD, University of Michigan  
Asset building; Civic engagement and civic service; Productive aging; Social policy; Community development; Youth development

## Professors

### F. Brett Drake

PhD, University of California, Los Angeles  
Children born prenatally exposed to drugs; Child protection and child protective practice

### Melissa Jonson-Reid

Director, Center for Violence and Injury Prevention  
PhD, University of California, Berkeley  
Education and child welfare services policy; Child abuse and neglect; Interagency service delivery systems; School social work

### Douglas A. Luke

Director, Center for Public Health Systems Science  
PhD, University of Illinois  
Evaluations of public health programs; Tobacco control and prevention policy; Community health interventions

**Timothy McBride**

PhD, University of Wisconsin–Madison  
Health policy; Health economics; Health insurance; Medicare and Medicaid policy; Rural health care; Health reform; Social Security and pensions; State health policy

**Shanta Pandey**

PhD, Case Western Reserve University  
Women's empowerment; Gender equity; Maternal and child health; Social welfare policy and program evaluation

**Vetta L. Sanders Thompson**

PhD, Duke University  
Cultural competence; Racial identity; Disparities in health and mental health services; Psychosocial implications of race and ethnicity in health communications; Access to health services

**Gautam N. Yadama**

Assistant Vice Chancellor for International Affairs - India  
PhD, Case Western Reserve University  
Community-based conservation; Collective action and public goods provision; Formal and informal institutions and community development; Environment, health, and development nexus; Human-natural system interactions; Environmental risk and adaptation

## Associate Professors

**Tonya Edmond**

Associate Dean for Diversity  
PhD, University of Texas at Austin  
Violence against women; Trauma-focused intervention research; Evidence-based practice

**Michal Grinstein-Weiss**

Associate Director, Center for Social Development  
PhD, Washington University  
Public policy; Economic & social mobility; Asset building

**Jack A. Kirkland**

MSW, Syracuse University  
International & national community economic development; Urban issues; International, state, and regional planning; International social development; Multicultural education

**Patricia Kohl**

Associate Dean for Social Work (interim)  
PhD, University of North Carolina at Chapel Hill  
Child welfare; Evidence-based practice; Engaging hard to reach populations in treatment; Parent training

**Carolyn Lesorogol**

Associate Dean for Global Strategy and Programs  
PhD, Washington University  
International social development; Capacity building and participatory development; Institutional change; Political economy; Ethnographic research

**Amanda Moore McBride**

Bettie Bofinger Brown Associate Professor; Director, Richard A. Gephardt Institute for Civic and Community Engagement  
PhD, Washington University  
Civic and community engagement; Civic service & service learning programs (international, national, and community service); Youth development; Qualitative field methods and analysis; International, comparative research

**Ramesh Raghavan**

PhD, University of California, Los Angeles  
MD, Kasturba Medical College  
Access to mental health services; quality of mental health care; Medicaid policy; Child well-being; Public health ethics

## Assistant Professors

**Derek Brown**

PhD, Duke University  
Health economics; Stated preference methods & health-related quality of life; Child abuse and neglect; Medicaid

**Sheretta T. Butler-Barnes**

PhD, Wayne State University  
Positive Youth Development; African Americans; Academic Achievement; Mental Health; Religiosity

**Alexis Duncan**

PhD, St. Louis University  
Psychiatric epidemiology; Obesity and eating disorders; Substance use and related disorders; Comorbidity; Child abuse and neglect; Behavior genetics

**Amy A. Eyler**

Assistant Dean for Public Health  
PhD, Oregon State University  
Physical activity; Childhood obesity; Policies and preventative health

**Vanessa Fabbre**

PhD, University of Chicago  
Aging and the Life Course; Health and Mental Health; Gender and Sexuality; Interpretive Methodology

**Patrick J. Fowler**

PhD, Wayne State University  
Housing and homelessness; Child maltreatment and child welfare system; Developmental psychopathology; Policy and program evaluation; Prevention science; Violence exposure

**Jenine Harris**

PhD, St. Louis University  
Dissemination research; Social network analysis; Social media; Public health systems

**J. Aaron Hipp**

PhD, University of California, Irvine  
Built environment; Geographic Information Systems (GIS); Environmental design; Physical activity policies and interventions; Emerging technologies in public health surveillance; Worksite environments and policies that support energy-balance

**Darrell L. Hudson**

PhD, University of Michigan  
Health disparities; Mental health; Health behavior; Health education; Violence and injury prevention

**Lora Iannotti**

PhD, Johns Hopkins University  
Young child nutrition; Micronutrient deficiencies; Infections diseases and poverty pathways; Evaluation research

**Kimberly Johnson**

PhD, University of Minnesota  
Epidemiology; Human genetics; Cancer

**Molly W. Metzger**

PhD, Northwestern University  
Affordable housing; Social policy; Poverty and inequality

**David A. Patterson**

PhD, University of Louisville  
Alcohol and other drug treatment retention and effectiveness; Implementation of evidence-based practices; Native American and Indigenous People's health and wellness; Underrepresented minority college success

**Carrie Pettus-Davis**

PhD, University of North Carolina, Chapel Hill  
Intervention research; Criminal justice; Substance abuse; Mental health; Social support

**Jason Q. Purnell**

PhD, Ohio State University  
Health behavior; Information and communication technologies; Health disparities

**Zorimar Rivera-Núñez**

PhD, University of Michigan  
Chemicals Exposures; Exposure Assessment Tools Development; Environmental Epidemiology; Maternal and Child Health

**Jean-Francois Trani**

PhD, Institut d'Etudes Politiques de Paris  
Mental health; Disabilities; International Social Work

**Anjanette A. Wells**

PhD, University of Southern California  
Adherence/Compliance to health/mental health treatment; Recruitment/Retention of low-income/minorities to research and practice; Culturally competent clinical interventions; Psychosocial oncology

## Degree Requirements

### PhD in Social Work

Students will need a minimum of 72 graduate credit hours for a PhD from the Brown School. These can include 21 master's-level credits.

The curriculum at the Brown School emphasizes substantive, theoretical and methodological preparation. Courses include:

- Introduction to Advanced Research
- Conceptual Foundations of Social Science Research
- The Role and Use of Theory in Applied Social Research
- Foundations of Data Analysis
- Applied Linear Regression Analysis
- Structural Equation Modeling

The first year of study includes basic principles in research, statistics, measurement, as well as theoretical orientations and content underlying the knowledge base of social work and social welfare.

The second year turns to a more individualized program of study. A curriculum plan is developed by each student and the adviser, focusing on an area of specialization within the field of social work.

The orientation of the PhD program is interdisciplinary, requiring 15 credits of course work in the social sciences. Social science courses are selected that are related to the student's developing area of specialization. Courses in research methodology, research and teaching practica, and specialized courses also help to build the student's expertise as a social work scholar. Professional competence is assessed through a qualifying examination and successful completion of a research dissertation.

## Speech and Hearing Sciences

The PhD in Speech and Hearing Sciences prepares students for academic and research careers in the field. Established in 1947, the program is dedicated to fostering scientific inquiry in speech and hearing sciences and related disciplines. The program is administered jointly between the Graduate School of Arts & Sciences and the Program in Audiology and Communication Sciences in the Washington University School of Medicine.

**Phone:** (314) 747-0104  
**E-mail:** pacs@wusm.wustl.edu  
**Departmental website:** <http://pacs.wustl.edu>

## Faculty

### Chair

**William W. Clark**  
Program Director and Professor  
PhD, University of Michigan

### Faculty List

To view our full faculty list, please visit <http://pacs.wustl.edu/our-faculty>.

## Degree Requirements

### Curriculum

The curriculum combines interdisciplinary academic course work, teaching experiences and research training and culminates in a dissertation. Each student's experience can be tailored to his or her individual interests.

The PhD requires 72 hours of graduate credit. Generally, 24 hours of graduate credit can be transferred toward the PhD from another institution; graduates of our AuD and MSDE programs are provided with advanced standing and may transfer up to 48 or 36 hours respectively.

### Teaching Experiences

Teaching experiences prepare students to become effective teachers and communicators of their discipline and their own research. All PhD students receive training in pedagogy and complete teaching experiences at the introductory and advanced levels under the guidance of a faculty mentor.

### Research

Students immerse themselves in the world-class research environment of Washington University. As they conduct their own original work, which culminates in a dissertation, they participate in colloquia, Grand Rounds, brown bag seminars, research seminars, journal clubs and similar opportunities. The program fosters opportunities to publish and participate in professional conferences. In the final year, students present and defend their dissertation.

The Program in Audiology and Communication Sciences (PACS) is affiliated with the Department of Otolaryngology, which operates one of the nation's largest hearing and deafness research programs. Topics include adult aural rehabilitation, biology of hearing and deafness, childhood deafness, cochlear implants, dizziness and balance, and hearing aids.

## Theater and Performance Studies

The master's program in Theater and Performance Studies introduces students to cutting-edge scholarship in the dynamic field of theater and performance studies, preparing them to

pursue academic careers as scholar-practitioners. Offering a broad-based approach to the study of performance, this two-year program expands a traditional focus on aesthetic practice to include cultural performances such as gender performativity, Civil Rights activism, early modern surgery, slave auctions, and begging. Under this broad umbrella, students are invited to explore the mutual engagement of aesthetic and cultural performance practices across history, around the globe, and between disciplines, drawing on a variety of theoretical approaches to illuminate the complex meanings generated by and through performance.

Because theater offers an occasion to reflect upon those meanings, stage performance is at the core of this program's course of study. Accordingly, students are offered a broad range of courses in theater history, ranging from the classical theater of Ancient Greece and Rome to contemporary multimedia performance, with attention to the performance practices of cultures beyond the borders of the United States. Building on this foundation, students may design a personalized course of study in a specific historical, cultural or theoretical field, according to their interests. We boast an expert faculty both from within the Performing Arts Department, including Dance, and from other units across campus, such as Anthropology; Classics; English and non-Anglophone languages and literatures; Music; Film and Media Studies; Women, Gender, and Sexuality Studies; and the Sam Fox School of Design and Visual Arts. The annual endowed Helen Clanton Morrin lecture allows us to host leading scholars and artists in performance research.

**Contact Person:** Julia Walker  
**Phone:** (314) 935-7134  
**E-mail:** [jwalker28@wustl.edu](mailto:jwalker28@wustl.edu)  
**Departmental website:** <http://pad.artsci.wustl.edu/graduate>

## Professors

**Robert Henke**  
PhD, University of California, Berkeley  
Ancient and Renaissance Theater and Performance,  
Comparative Literature, Dramatic Theory

**Henry I. Schvey**  
PhD, Indiana University  
Modern American and European Drama, Shakespeare in  
Production, Expressionism and the Arts, Tennessee Williams

## Associate Professors

**Mary-Jean Cowell**  
PhD, Columbia University  
Modern Dance Technique, Theory and Composition, Dance  
History and Ethnology

**Jeffrey Q. McCune, Jr.**

PhD, Northwestern University  
Performance Theory, Black Performance, Ethnographic  
Adaptation

**Julia Walker**

PhD, Duke University  
Theatrical Modernism, Performance Theory, History of Acting

## Assistant Professors

**Pannill Camp**

PhD, Brown University  
18th-Century French Theater, Dramatic Theory, Theater  
Architecture

**Paige McGinley**

PhD, Brown University  
20th-Century Theater and Performance, Race, Ethnicity, and  
Performance, American Studies

## Professors of the Practice

**Christine Knoblauch-O'Neal**

PhD, Texas Women's University  
Ballet, Applied Anatomy, Musical Theater, Performance Studies

**Bonnie Kruger**

MFA, University of Illinois  
Costume Design, History and Construction, Rendering, Baroque  
Opera

**David Marchant**

MFA, University of Iowa  
Modern Dance, Composition, Improvisation, Alexander  
Technique, Somatic Studies

**Jeffery Matthews**

MFA, Virginia Commonwealth University  
Acting, Directing, Voice and Speech

**Annamaria Pileggi**

MFA, Brandeis University  
Acting, Movement, Musical Theater, Robotics and Expressive  
Simulation, Theatre for Social Change

**Cecil Slaughter**

MFA, University of Iowa  
Dance

**William Whitaker**

MFA, Florida Atlantic University  
Acting, Directing

## Artist-in-Residence

**Ron Himes**

Henry E. Hampton, Jr. Artist-in-Residence  
BA, Washington University  
African-American Theater

## Senior Lecturers

**Robert Mark Morgan**

MFA, San Diego State University  
Scenic Design

**Sean Savoie**

MFA, University of Cincinnati - College Conservatory of Music  
Lighting Design, Production Management

**Andrea Urice**

MFA, University of Virginia  
Directing, Acting, Creative Studies

## Playwright-in-Residence

**Carter W. Lewis**

MA, University of Oklahoma  
Playwriting, Dramaturgy, A.E. Hotchner Playwriting Festival

## Degree Requirements

### Degree Requirements: 36 units (12 courses)

#### I. Required courses: 15 units (5 courses)

1. **Drama 5101, Introduction to Graduate Study.** A general introduction to advanced scholarship in theater and performance studies, this course is designed to familiarize first-year graduate students with expectations for advanced research and professional writing. It is also intended to provide an overview of theater and performance studies, focusing on the relationship between these two scholarly domains, major works of scholarship that have defined the field, and current debates redrawing its contours.

2. **Drama 449, Seminar in Dramatic Theory.** An in-depth exploration of core works of dramatic theory from the ancient world to the present, this course focuses on texts that enunciate what theater is, has been, and should be. Readings address theater's role in society, the anti-theatrical prejudice; the aesthetic pleasures of drama and theater, theater as a means of educating the citizen, and the relationship between dramatic form and social and political revolution. Moving chronologically, the course begins with Aristotle's *Poetics*, Bharata's *Natyasastra*, and Horace's *Ars Poetica*, and then progresses through the Middle Ages, the Neoclassical and Romantic eras, the explosion of fin de siècle avant-gardes, and contemporary debates about interculturalism, and the post-dramatic theater. With a global focus, the course examines key texts from beyond the European tradition, including works of dramatic theory written in medieval Japan and postcolonial Nigeria.

3. **Drama 497, Performance Theory.** This course introduces students to contemporary theories of performance, with "performance" understood as both metaphor and event. From a multidisciplinary perspective, students will consider how

cultures produce meanings — and, indeed, perform those meanings — to create and/or disrupt their own social coherence. Theories studied include: Philosopher J.L. Austin's speech-act theory and its engagement by John Searle and Jacques Derrida; anthropologist Victor Turner's analysis of ritual as social process and Richard Schechner's use of it to transform "theater studies" into "performance studies"; sociologist Erving Goffman's sociology of the self and its relation to a post-structuralist model of subjectivity; art historian Michael Fried's screed against minimalist art and its relation to Happenings, Body Art, Fluxus, and other mid- to late-20th century examples of "performance art"; and philosopher Judith Butler's influential revision of Austin's performative in her theory of queer "performativity."

4. **Theater/Performance History.** One 400- or 500-level historically-based seminar from a list of approved courses taught *within* the Performing Arts Department. (Topics vary by semester.) Students are encouraged to meet this requirement with L15 Drama 507, Problems in Contemporary Theoretical Research.

5. **Theater Practice.** At least one (but no more than three) 400- or 500-level course(s) in theater practice: dramaturgy, directing, playwriting, or design. Students are encouraged to meet this requirement with L15 Drama 506, Problems in Contemporary Arts Practice Research.

## II. Electives: 21 units (7 courses)

Students are invited to develop a broad-based or a specialized curriculum in theater and performance studies, choosing courses from within the Performing Arts Department, including Dance, or as many as four courses (12 units) from without. The program works closely with Faculty Affiliates in other departments, including Anthropology; Classics; English and non-Anglophone languages and literatures; Film and Media Studies; Music; Women, Gender, and Sexuality Studies; and the Sam Fox School of Design and Visual Art.

## III. AM Exam

The AM exam is based on a seminar paper written during the student's first three semesters in the program, which, under the guidance of a faculty adviser, is extensively revised and expanded into an essay of publishable length (typically 25 double-spaced pages) and publishable quality. After the revised seminar paper has been submitted to and approved by the DGS, the student will meet with a committee of three faculty members (the adviser, the DGS, and a third faculty member, one of whom may be from another department) for an oral exam.

## Urban Studies

### Graduate Certificate Program in Urban Studies

The Graduate Certificate Program in Urban Studies is administered by the Urban Studies Program and the Graduate School of Arts & Sciences.

The Urban Studies program director, Professor Carol Camp Yeakey, is responsible for the Graduate Certificate program.

### Selection of Candidates and Admission Criteria

- PhD students in any department will be considered.
- Applications should be submitted to the certificate program director, and will be reviewed in consultation with the student's doctoral adviser, and approval by the Director of Graduate Studies of the home degree program. Upon review of applications by the Urban Studies Graduate Certificate Program Committee, the program director will make recommendations for admission into the Graduate Certificate program to the Dean of the Graduate School of Arts & Sciences for final approval.
- Individual students are responsible for filing a separate "Intent to Graduate" form for the Certificate which is to be awarded simultaneously with the PhD degree.

<b>Contact Person:</b>	Carol Camp-Yeakey
<b>Phone:</b>	(314) 935-6241
<b>E-mail:</b>	cyeakey@wustl.edu
<b>Departmental website:</b>	<a href="http://urbanstudies.wustl.edu/programs/graduate-certificate-program">http://urbanstudies.wustl.edu/programs/graduate-certificate-program</a>

## Degree Requirements

The Graduate Certificate requires successful completion of five courses for a total of 15 graduate units: two core courses and three electives.

Whereas the PhD requires a total of 72 units, the Graduate School of Arts & Sciences requires of all students receiving a graduate certificate 9 additional units, for a total of 81 units. Therefore, 9 credit units must be in courses not used to satisfy requirements of the student's doctoral degree. At least 6 of the units must be satisfied by core courses offered outside of the student's doctoral department, as approved by the Graduate Studies Director of the home program and Certificate Program Director.

## Women, Gender, and Sexuality Studies

Washington University offers a Graduate Certificate in Women, Gender, and Sexuality Studies (WGSS) for students in AM or PhD programs who wish to enhance their disciplinary studies with a concentration in gender and sexuality studies. The certificate offers students opportunities to meet and work with faculty and graduate students in departments throughout Arts & Sciences and the professional schools who do research on women, gender, and sexuality. It prepares students for job opportunities within women, gender, and sexuality studies programs as well as within their home disciplines. Graduate certificate students are invited to participate in a variety of events, including special guest lectures and workshops, conferences, the WGSS Colloquium Series, faculty searches, the WGSS newsletter *Gender Spectrum*, and informal gatherings. The program sponsors a graduate certificate workshop providing both professional development and a place where graduate students share their work with others interested in feminist and gender-oriented scholarship.

Women, Gender, and Sexuality Studies also offers certificate students the opportunity to observe and then design and teach sections of introductory courses in Women, Gender, and Sexuality Studies. PhD students in Anthropology, Comparative Literature, East Asian Languages and Cultures, Education, English, German, History, Philosophy, Political Science, and Romance Languages and Literatures have served as joint teaching assistants in this program. Participating students are equipped to offer both disciplinary and interdisciplinary scholarly and teaching expertise to hiring institutions. Interacting with faculty in the program and participating in the joint teaching program provide students with a rich repertoire of pedagogical skills, scholarly opportunities, professional development, and collaborative experiences.

**Phone:** (314) 935-5102  
**E-mail:** wgss@wustl.edu  
**Departmental website:** <http://wgss.artsci.wustl.edu>

### Director

#### Mary Ann Dzuback

Director of Women, Gender, and Sexuality Studies; Associate Professor of Women, Gender, and Sexuality Studies, Education, and History (courtesy)  
PhD, Columbia University  
Women, gender, and sexuality studies, education, and history

### Core Faculty

#### Cynthia Barounis

Lecturer  
PhD, University of Illinois at Chicago  
(Women, Gender, and Sexuality Studies and English)

#### Barbara Baumgartner

Associate Director of Women, Gender, and Sexuality Studies and Senior Lecturer  
PhD, Northwestern University  
Women, gender, and sexuality studies, English

#### Amy Cislo

Senior Lecturer  
PhD, Washington University in St. Louis  
Women, gender, and sexuality studies, German

#### Andrea Friedman

Associate Professor of History and Women, Gender, and Sexuality Studies  
PhD, University of Wisconsin-Madison  
Women, gender, and sexuality studies, history

#### Dredge Byung'chu Kang

Postdoctoral Fellow in Women, Gender, and Sexuality Studies  
PhD, Emory University  
(Women, Gender, and Sexuality Studies and Anthropology)

#### Jeffrey Q. McCune Jr.

Associate Professor of Performing Arts and Women, Gender, and Sexuality Studies  
PhD, Northwestern University  
Women, gender, and sexuality studies, performance studies

#### Amber Jamilla Musser

Assistant Professor  
PhD, Harvard University  
Women, gender, and sexuality studies

#### Rebecca Wanzo

Associate Professor of Women, Gender, and Sexuality Studies and Associate Director, Center for Humanities  
PhD, Duke University  
Women, gender, and sexuality studies

#### Linda Nicholson

Susan E. and William P. Stiritz Distinguished Professor of Women's Studies  
PhD, Brandeis University  
Women, gender, and sexuality studies, history

### Affiliate Faculty

#### Jean Allman

J.H. Hexter Professor in Humanities  
PhD, Northwestern University  
History

#### Susan Frelich Appleton

Lemma Barkeloo and Phoebe Couzins Professor of Law  
JD, University of California, Berkeley  
Law

**Miriam Bailin**

Associate Professor  
PhD, University of California, Berkeley  
English

**Nancy E. Berg**

Professor  
PhD, University of Pennsylvania  
Modern Hebrew and Literatures

**Shefali Chandra**

Associate Professor  
PhD, University of Pennsylvania  
History

**Rebecca Copeland**

Professor  
PhD, Columbia University  
Japanese

**Elizabeth Childs**

Etta and Mark Steinberg Professor of Art History  
PhD, Columbia University  
Art history and archaeology

**Marion Crain**

Wiley B. Rutledge Professor of Law  
JD, University of California, Los Angeles  
Law

**Adrienne Davis**

William M. Van Cleve Professor of Law  
JD, Yale University  
Law

**Tonya Edmond**

Associate Professor  
PhD, University of Texas at Austin  
Social Work

**Vanessa Fabbre**

Assistant Professor  
PhD, University of Chicago  
Social Work

**Denise Elif Gill**

Assistant Professor  
PhD, University of California, Santa Barbara  
Ethnomusicology

**Beata Grant**

Professor  
PhD, Stanford University  
Chinese, religious studies

**R. Marie Griffith**

John C. Danforth Distinguished Professor  
PhD, Harvard University  
religious studies

**Christine Johnson**

Associate Professor  
PhD, John Hopkins University  
History

**Stephanie Kirk**

Associate Professor  
PhD, New York University  
Spanish, comparative literature

**Rebecca Lester**

Associate Professor  
PhD, University of California, San Diego  
Sociocultural anthropology

**Erin McGlothlin**

Associate Professor  
PhD, University of Virginia  
Holocaust literature and film, German-Jewish literature,  
postwar and contemporary German literature, narrative theory,  
autobiography, the graphic novel

**Rebecca Messbarger**

Associate Professor  
PhD, University of Chicago  
Italian, history, women, gender and sexuality studies

**Melanie Micir**

Assistant Professor  
PhD, University of Pennsylvania  
Modern and contemporary British and Anglophone literature;  
women's, gender, and sexuality studies; queer theory; age  
studies; disability studies

**Angela Miller**

Professor  
PhD, Yale University  
Art history and archaeology

**Patricia Olynyk**

Florence and Frank Bush Professor of Design and Visual arts  
MFA, California College of the Arts  
Visual art

**Shanti Parikh**

Associate Professor  
PhD, Harvard University  
Sociocultural anthropology, African and African-American studies

**Anca Parvulescu**

Professor  
PhD, University of Minnesota  
English literature, modernism, American literature

**Vivian Pollak**

Professor  
PhD, Brandeis University  
English literature, American gender and sexuality modernism

**Nancy Reynolds**

Associate Professor  
PhD, Stanford University  
History

**Jessica Rosenfeld**

Associate Professor  
PhD, University of Pennsylvania  
English, medieval literature

**Carolyn Sargent**

Professor  
PhD, Michigan State University  
Sociocultural anthropology

**Elizabeth Sepper**

Associate Professor  
JD, New York University  
Law, women's health, antidiscrimination, reproductive rights,  
contraception, reproductive health

**Julie Singer**

Associate Professor  
PhD, Duke University  
Medieval French & Italian literature and culture

**Peggie Smith**

Charles F. Nagel Professor of Employment and Labor Law  
JD, Yale University  
Law

**Gaylyn Studlar**

David May Distinguished University Professor in Humanities  
PhD, University of Southern California  
Feminist film theory, genre studies, Hollywood cinema,  
Orientalism

**Lynne Tatlock**

Hortense and Tobias Distinguished Professor in Humanities  
PhD, Indiana University  
Book history, gender studies and women's writing, history of the  
novel, literature & medicine, literature & society, nationalism,  
reading cultures, regionalism

**Kedron Thomas**

Assistant Professor  
PhD, Harvard University  
Sociocultural anthropology

**Karen Tokarz**

Charles Nagel Professor of Public Interest and Public Service  
Law  
JD, St. Louis University  
Law

**Corinna Treitel**

Associate Professor  
PhD, Harvard University  
History

**Akiko Tsuchiya**

Professor  
PhD, Cornell University  
Spanish, women, gender, and sexuality studies

**Anika Walke**

Assistant Professor  
PhD, University of California  
History

**Gerhild Scholz Williams**

Barbara Schaps Thomas and David M. Thomas Professor in the  
Humanities  
PhD, University of Washington  
Early modern German and French literature & culture, translation  
theory and practice, literature of the occult

**Colette H. Winn**

Professor  
PhD, University of Missouri-Columbia  
French language & literature

## Degree Requirements

Graduate students interested in the certificate should apply for it after consulting both their departmental Director of Graduate Studies and the certificate program director. The certificate requires the completion of five graduate-level courses, at least two of which must be drawn from home-based Women, Gender, and Sexuality Studies course offerings.

## Writing

The Writing program offers a Master of Fine Arts in Writing (MFA) in three genres — creative nonfiction, fiction, and poetry. The primary faculty in creative nonfiction are Kathleen Finneran and Edward McPherson; in fiction they are Kathryn Davis, Danielle Dutton, and Marshall Klimasewiski; in poetry they are Mary Jo Bang and Carl Phillips.

We enroll 12 to 15 students each year. There is a single graduate workshop in each genre and students take their genre's workshop all four semesters. Every student we enroll receives full and equal funding, and our funding package is among the best in the nation. Our students do not teach the first year, instead taking three courses each semester; in the second year they take two courses and teach one introductory workshop in their genre each semester. Applicants must apply to each genre separately and will be enrolled in only one. However, through themed craft courses, MFA students may take courses with faculty and students in other genres.

Each year our reading series brings a diverse group of poets, fiction writers, and nonfiction writers to the department. In addition, the Hurst Professor program brings in six distinguished visitors each year to present their newest work, lecture on the craft of writing, and work one-on-one with our MFA students. Edward P. Jones, Frank Bidart, Joy Williams, Jorie Graham,

Aleksandar Hemon, Lucie Brock Broido, George Saunders, Louise Glück, Kelly Link, C.D. Wright, Richard Powers, Claudia Rankine, Deborah Eisenberg, Paul Muldoon, Charles Baxter, Timothy Donnelly, and Lydia Davis are just some of our recent visiting Hurst Professors.

**Contact Person:** Shannon Rabong  
**Phone:** (314) 935-7428  
**E-mail:** scrabong@wustl.edu  
**Departmental website:** [http://english.artsci.wustl.edu/graduate/writing\\_program](http://english.artsci.wustl.edu/graduate/writing_program)

## Professors

**Mary Jo Bang**  
MFA, Columbia University

**Carl Phillips**  
MA, Boston University

## Assistant Professors

**Danielle Dutton**  
PhD, University of Denver

**Edward McPherson**  
MFA, University of Minnesota–Twin Cities

## Writers-in-Residence

**Kathryn Davis**  
BA, Goddard University

**Kathleen Finneran**  
BA, Washington University

**Marshall Klimasewiski**  
MFA, Bowling Green State University

## Director of Creative Writing Program

**David Schuman**  
MFA, Washington University

## Degree Requirements

### Master of Fine Arts in Writing

The Writing program leads to the Master of Fine Arts in Writing (MFA). It is a two-year program, requiring satisfactory completion of 42 semester hours, a thesis, and an oral examination dealing principally with the thesis.

### Course Work

Of the 42 credit units required, 24 will consist of the graduate nonfiction, fiction, or poetry workshop taken every semester. The remainder will primarily be literature and craft courses from the English department, but in consultation with the Director of the Program, graduate-level courses from any department are acceptable as long as the student has the appropriate preparation and the permission of the instructor, and the course

will enrich the student's writing. Up to 6 units of playwriting or nonfiction prose workshops, and up to 6 units of independent study (providing instructors are available) may be counted among the academic courses.

In the first year, students enroll for 24 units: the graduate workshop in their genre (6 units) plus two additional 3-unit courses each semester. In the second year, while teaching, students will typically take a total of 18 units: the workshop each semester again (12 units), thesis hours (3 units), and an additional course. This pattern may vary for the students who are not teaching assistants, or for whom the director approves a different distribution of the workload.

## First Year Review

At the conclusion of each workshop students will receive an evaluation from the workshop instructor; at the end of the first year there will be a review of overall performance in the program. At this time, students who show insufficient progress as writers may be dismissed even though their academic records are satisfactory (although such cases are rare). Students who are lagging in their academic work may be put on warning at this time or may be dismissed.

## Thesis

The required work for the MFA culminates in a thesis, which may take different forms but is usually a volume (or most of a volume) of poems, stories or essays, or a novel (or most of a novel), or a memoir or other long-form CNF work (or most of one). Graduate School regulations require the filing of a "Thesis Title, Scope, and Procedure" form at least six months before the date of the degree-granting period. Students in the program, when filing this form, will select a committee of three readers (a thesis director and two other full-time members of the faculty). Generally, the thesis will be completed and defended in the spring of the second year. Under unusual circumstances, it is possible to complete the thesis out of residence and return for the oral examination.

## Oral Examination

Near the end of the second year, after the thesis has been submitted in final form, the department will schedule an oral examination, dealing principally with the thesis.

## University College

University College is the continuing education and professional studies division of Arts & Sciences at Washington University. Students can complete master's degrees, certificates and certification programs, and a Doctor of Liberal Arts, which are conferred by the Graduate School but administered by University College for students taking evening courses and usually enrolled on a part-time basis. In addition, University College offers other master's degrees and graduate certificates that are not conferred

by the Graduate School and therefore are not described in this publication.

For further information, please visit the following pages:

- American Culture Studies (p. 145)
- Biology (p. 145)
- Education (p. 145)
- Human Resources Management (p. 146)
- International Affairs (p. 146)
- Liberal Arts (p. 146)
- Nonprofit Management (p. 147)
- Statistics (p. 147)

**Departmental website:** <http://ucollege.wustl.edu>

## UCollege - American Culture Studies

### Master of Arts in American Culture Studies

The Master of Arts in American Culture Studies addresses the intellectual and moral questions of American identity and belonging that no single disciplinary perspective can comprehensively and satisfyingly resolve. What does it mean to live and work in an American culture devoted to individual success and autonomy and at the same time be a citizen of a nation devoted to collective needs and well-being?

The 30-unit Master of Arts in American Culture Studies provides the training, both in specific disciplines and in cross-disciplinary conversations, to help students answer important questions about American society. It also introduces some of the social, political, and cultural issues that have shaped American culture and identity. Most fundamentally, it provides a critical skill set that fosters analysis of an array of cultural objects — a place, an event, a work of art, a political institution — from a rich and diverse foundation of knowledge and perspectives.

**Contact Person:** Michael Allen  
**Phone:** (314) 935-6086  
**E-mail:** [allen.m@wustl.edu](mailto:allen.m@wustl.edu)  
**Departmental website:** <http://ucollege.wustl.edu/programs/graduate/amcs>

## UCollege - Biology

University College offers both a Master of Arts and a Master of Science in Biology.

### Master of Arts in Biology

The AM in Biology is designed for working adults seeking to update their science knowledge; pursue a specialty such as biotechnology, ecology, neurobiology, or genetics; prepare

for employment in emerging science fields; improve their professional standing; or deepen their understanding of biology. The MS in Biology is designed for middle and secondary school teachers; its curriculum integrates current research in life sciences and education to demonstrate the importance of scientific issues to the global community.

Students seeking the AM in Biology must satisfactorily complete 30 units of graduate work in the biological sciences in courses approved by the program committee, including a required capstone experience. This may be either a 3-unit capstone course or a 6-unit master's thesis. Students must have completed at least 21 units to be eligible for a capstone experience. Only students with appropriate backgrounds, interests, and academic qualifications may be authorized to write a master's thesis based on original library or laboratory research. All students admitted to the AM are required to take at least half of the course work on the Washington University campus.

### Master of Science in Biology

The MS in Biology is a two-year program designed to fit the schedules of working teachers. It includes two summer institutes, three weeks each, in residence at Washington University, along with online course work during the academic years following each summer. Students seeking the MS in Biology must satisfactorily complete 30 units of prescribed course work covering a wide range of scientific topics and methods for teaching them. The program admits new students in alternate years.

**Contact Person:** Ian Duncan  
**Phone:** (314) 935-6719  
**E-mail:** [duncan@wustl.edu](mailto:duncan@wustl.edu)  
**Departmental website:** [http://ucollege.wustl.edu/areas/biology/masters\\_biology](http://ucollege.wustl.edu/areas/biology/masters_biology)

## UCollege - Education

University College offers both a Master of Arts in Education—Instructional Process, and Post-Baccalaureate Teacher Certification.

### Master of Arts in Education—Instructional Process

The Master of Arts in Education—Instructional Process focuses on an Analysis of Practice for practicing educators in a variety of settings. This Analysis of Practice allows educators to consider multiple and enhanced approaches for data collection, analysis, and reflection on educational issues involving educational assessment data, video microanalysis, learning sciences research, and educational foundation concepts. The MAEd—IP degree program offers three strands of study: Professional Development, Elementary/Middle Science Education, and Innovative Teacher Certification. All three strands require

students to complete the core course work with a culminating portfolio project. Students must complete at least 30 credits to earn this master's degree.

## Post-Baccalaureate Certification

The Post-Baccalaureate Certification program provides students who have completed a bachelor's degree with the course work necessary to obtain a Missouri teaching certificate. All course work is available through University College during afternoon and evening hours with the exception of student teaching, which is available during the fall (elementary) or spring (middle school, secondary, and K-12) semester. Required course work is taken for undergraduate credit. Certification through this program is available in the following teaching areas:

- Secondary Education (grades 9-12): biology, chemistry, earth science, English, mathematics, physics, or social studies
- Middle School (grades 5-9): English, mathematics, science, or social studies
- K-12: art, dance, classics (Latin), or modern foreign languages (French, German, Japanese, Russian, Spanish)
- Elementary Education (grades 1-6)

**Contact Person:** Natalia Kolk  
**Phone:** (314) 935-6791  
**E-mail:** nakolk@wustl.edu  
**Departmental website:** <http://ucollege.wustl.edu/areas/education/masters>

## UCollege - Human Resources Management

### Master of Arts in Human Resources Management

Human resources managers are an integral part of the leadership team charged with directing complex organizations and a diverse workforce. Managing people and organizations requires both functional skills in human resources as well as expertise in strategic planning and organization development. The Master of Arts in Human Resources Management prepares individuals in a variety of employment settings to join other organizational leaders at the table of decision makers.

The 36-unit Master of Arts in Human Resources Management provides students with skills and information in key operational areas such as human relations and communications, compensation and benefits, training and development, employee and labor relations, and staffing and retention. Additionally, the program teaches professionals how to contribute to organizational development, change, risk management, and strategic planning.

**Departmental website:** [http://ucollege.wustl.edu/areas/business/human\\_resources](http://ucollege.wustl.edu/areas/business/human_resources)

## UCollege - International Affairs

### Master of Arts in International Affairs

Living and working in a rapidly changing global environment presents great risks and opportunities. Our heightened economic and political interdependence also generates serious challenges in areas such as social justice, diversity, international security, sustainable development, resource distribution, technology, and human rights. Moreover, rising nationalism and complex ethnic and religious tensions pose ongoing challenges while they also invite strategies for compromise and cooperation.

The Master of Arts in International Affairs addresses complex issues and related questions from multiple perspectives, drawing on teaching expertise of both WUSTL faculty and experienced practitioners in the St. Louis region. The 30-unit program provides knowledge, skills, and resources for understanding global issues and generating potential solutions to some of the most difficult international and cross-cultural problems we face today. In addition to studying topics such as international business, trade, human rights, economic development, and international security, students will explore how different regions of the world respond to and shape current events. Students will also examine how transformations in media and communication impact international affairs. The program provides depth and breadth of topical coverage together with skills in research methodology.

**Contact Person:** Andrew Sobel  
**E-mail:** sobel@wustl.edu  
**Departmental website:** <http://ucollege.wustl.edu/internationalaffairs>

## UCollege - Liberal Arts

We live today in a rich and varied culture. Every moral, social, political, and cultural question we face demands the broadest consideration we can give it, drawing from the multiplicity of methods and perspectives nurtured and cultivated in the many disciplines of a great university. Both the **Master of Liberal Arts (MLA)** and **Doctor of Liberal Arts (DLA)** provide the chance to practice the methods of interdisciplinary inquiry that are the hallmark of a rigorous liberal arts education.

### Master of Liberal Arts (MLA)

In the 30-unit MLA program, students explore questions of identity through art, literature, and religion; analyze the politics of race in fiction, historical documents, the visual arts, and music; and debate ethical choices presented by fiction writers, jurists, philosophers, and scientists. Students examine literary, artistic,

and cinematic masterpieces; historic moments of discovery and change; traditions of thought; cultural differences; and civic responsibilities. The program also sharpens thinking about contemporary values and choices through courses that address an individual's relation to society, technology and the spread of ideas, challenges to freedom, and inspiration and creativity.

For more information, visit: <http://ucollege.wustl.edu/MLA>.

## Doctor of Liberal Arts (DLA)

The DLA is designed for the experienced adult learner who wishes to pursue rigorous interdisciplinary study along with independent, scholarly reading and research. The degree is designed to cultivate interdisciplinary skills, intellectual habits, analytical and critical reasoning, effective writing, and broad-based decision making. The DLA is primarily for working professionals who have already earned a master's degree and who seek further intellectual enrichment while pursuing advanced graduate study on an evening, part-time basis. This degree neither constitutes a professional credential nor provides training for an academic career.

To earn the DLA degree at Washington University, a student must complete 45 credit hours after earning a relevant master's degree, pass a written and oral comprehensive examination, and write and defend a thesis.

For more information, visit: <http://ucollege.wustl.edu/DLA>.

## UCollege - Nonprofit Management

### Master of Arts in Nonprofit Management

Nonprofit organizations confront the challenges and opportunities that mission-driven organizations face today in areas such as succession planning, volunteerism, resource development, and competitive funding. The Master of Arts in Nonprofit Management addresses these areas, drawing on experienced practitioners in the St. Louis area.

The AM provides skills and resources for leading mission-driven organizations as productive examples of social entrepreneurship. Grounded in the historical context of nonprofit management and philanthropy, students will acquire skills in all operational areas of nonprofit management, including financial management, law, grant writing, volunteer management, resource development, research and statistical analysis, and marketing communications. At the strategic level, the program teaches leadership, organization development, strategic planning, marketing communications, and the skills of social entrepreneurship.

The Master of Arts in Nonprofit Management consists of 36 units of graduate course work that covers all aspects of nonprofit administration and management.

Departmental website: <http://ucollege.wustl.edu/nonprofit>

## UCollege - Statistics

### Master of Arts in Statistics

The Master of Arts in Statistics prepares students to be part of an information-rich, data-driven workforce that requires both general and specialized skills in statistical analysis.

In this 30-unit program, students learn essential elements of statistical studies with courses in probability, statistical computation and model building, experimental design, survival analysis, Bayesian statistics, and stochastic processes. These courses, along with a required thesis practicum, provide a foundation for further doctoral-level study in mathematics and statistics, or in other academic disciplines such as anthropology, biology, economics, political science, and psychology.

In addition to establishing a solid theoretical foundation, students also gain applied value with tools, strategies, and technical skills in areas such as predictive analytics and big data, preparing them to help organizations analyze large volumes of data, make reliable and productive business decisions, and use technology efficiently.

Contact Person: Lisa Kuehne  
Phone: (314) 935-4226  
E-mail: [lmkuehne@wustl.edu](mailto:lmkuehne@wustl.edu)  
Departmental website: <http://ucollege.wustl.edu/statistics>

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